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DRAFT ENVIRONMENTAL IMPACT REPORT

SAN JOSE ARENA FACILITY

SAN JOSE, CALIFORNIA

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VOL. I OF II

AUGUST 1987

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CITY OF SAN JOSE, CALIFORNIA

DEPARTMENT OF CITY PLANNING
801 NORTH FIRST STREET
SAN JOSE, CA 95110-1795

GARY J. SCHOENNAUER
DIRECTOR OF PLANNING

August 19, 1987

REFERENCE: File No. ER 87-8-26

The enclosed Draft Environmental Impact Report will have a public hearing before the Planning Commission to determine the environmental significance of the project described below. Any comments or suggestions you can make to assist us in adequately addressing all anticipated environmental effects of this project will be greatly appreciated.

If you wish to have your comments or suggestions regarding this Environmental Impact Report considered by the Planning Commission, please have them on file in the City Planning Department by October 7, 1987. IF YOUR COMMENTS ARE MADE THROUGH A STATE OR REGIONAL CLEARINGHOUSE, PLEASE SEND A COPY TO THE CITY TO INSURE PROMPT CONSIDERATION.

NATURE OF PROJECT: The proposed project is the development of a 20,000 seat enclosed arena facility on one of three possible sites. The potential sites for the arena facility are: (A) the area located north of Santa Clara Street between Los Gatos Creek, and the Southern Pacific Railroad right-of-way; (B) the area north of Julian Street between State Route 87 and the Guadalupe River; and, (C) the area located at the southeast corner of State Route 237 and Zanker Road.

CONTACT PERSON: John Lusardi, Senior Planner

TENTATIVE HEARING DATE: September 30, 1987

Gary J. Schoennauer
Director of Planning

William A. Flores
Deputy

Mail Comments To:

City Planning Department
801 N. First Street
City Hall Annex, Room 400
San Jose, CA 95110
(408) 277-4576
Attn: (See above contact person)

2705L

CITY OF SAN JOSE, CALIFORNIA

DEPARTMENT OF CITY PLANNING
801 NORTH FIRST STREET
SAN JOSE, CA 95110-1795

GARY J. SCHOENNAUER
DIRECTOR OF PLANNING

Tentative Hearing Date:

September 30, 1987

ENVIRONMENTAL IMPACT REPORT SUMMARY

File No. ER 87-8-26

Project Description and Location.

The proposed project is the development of a 20,000 seat arena facility on one of the three alternative sites. The three potential sites for the arena facility are: (A) the area located north of Santa Clara Street between Los Gatos Creek and the Southern Pacific Railroad right-of-way; (B) the area north of Julian Street between State Route 87 and the Guadalupe River; and, (C) the area located at the southeast corner of State Routhe 237 and Zanker Road.

Environmental Impact. The following are the principal environmental impacts discussed in the attached Environmental Impact Report:

- Land Use
- Traffic and Circulation
- Parking Analysis
- Pedestrian and Neighborhood Analysis
- Climate and Air Quality
- Community Noise
- Geology and Soils
- Hydrology and Flooding
- Vegetation and Wildlife
- Urban Services
- Aesthetic Resources
- Archaeological Resources
- Historic Resources
- Energy Consumption
- Hazardous Materials
- Urban Economics
- Aircraft Safety (Site A and B only)
- Chlorine Risk Assessment (Site C only)
- Cumulative Impacts

2709L

PREFACE

The City of San Jose has determined that an Environmental Impact Report (EIR) is required for the proposed San Jose Arena Facility project. The Arena Facility is presently proposed to be completed for operation in 1991. Under the California Environmental Quality Act (CEQA), the purpose of an EIR is to provide objective information to public decision-makers and the general public regarding potential environmental effects resulting from project implementation. The City of San Jose can then institute methods of reducing adverse impacts or consider alternatives to the project.

Although this is an alternative analysis EIR, this document will serve as the EIR for the implementation of the proposed San Jose Arena Facility project.

This EIR has been prepared pursuant to CEQA of 1970, and subsequent amendments presently in effect. Included in the recent CEQA amendments is the policy that the purpose of an EIR is to identify only the significant effects of a project on the environment. The amendments define significant to be a "substantial adverse impact on the environment. " This EIR, therefore, discusses in detail primarily those impacts determined to have a significant adverse effect.

In accordance with Section 15143 of the CEQA Guidelines, which states that "significant effects should be discussed with emphasis in proportion to their severity and probability of occurrence," this EIR analyzes different areas of impact for each issue examined, depending on the magnitude of the effect. Examination of the impacts is limited to the local vicinity of the project, when appropriate, to adequately describe effects. If needed, impacts are discussed in a broader area.

Additionally, Section 15131 of the CEQA Guidelines states, "Economic or social effects of a project shall not be treated as significant effects on the environment." Accordingly, these issues are not discussed in this EIR.

The State Resources Agency, in Section 15126(c) of its amended CEQA Guidelines, states that "the discussion of mitigation measures shall distinguish between the measures that are proposed by project proponents to be included in the project, and other measures that are not included but could reasonably be expected to reduce adverse impacts." Thus, the mitigation measures recommended herein are not presently included in the project description, unless otherwise specifically noted.

As previously stated, the purpose of an EIR is to present objective information regarding the environmental consequences of a proposed project to the decision-makers for the review of a project. The following policies are included in CEQA to clarify the role of an EIR.

> 15121(a) INFORMATIONAL DOCUMENT. An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency.

> 15151 STANDARDS FOR ADEQUACY OF AN EIR. An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed projectneed not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good-faith effort at full disclosure.

Because an EIR focuses on an objective presentation of environmental facts, it cannot make policy recommendations for or against a project. It is the responsibility of the City of San Jose to weigh the relative importance of environmental data with the full range of other important community factors, such as cost, public opinion and local policy, during its evaluation of the possible courses of action. Adoption of courses of action for the San Jose Arena Facility project are the primary policy decisions of the City of San Jose for this project.

The City of San Jose, as the Lead Agency for this project, filed a "Notice of Preparation" for this proposed document. In this Notice of Preparation, the City requested comments from Responsible Agencies as to the scope and content of the environmental information which would be germane to the Responsible Agency's statutory responsibility in connection with the proposed project. During the 30 day review period of this Notice of Preparation, nine Responsible Agencies submitted comments regarding the preparation of the San Jose Arena Facility EIR. These agencies included:

- The Santa Clara County Transportation Agency
- Bay Area Air Quality Management District
- Santa Clara Valley Water District
- State of California Department of Conservation
- MAG Consultants, Incorporated
- City of Santa Clara
- Santa Clara County Airport Land Use Commission
- Metropolitan Transportation Commission
- State of California Department of Transportation

Comments from these Responsible Agencies to the Notice of Preparation have been incorporated into this environmental document.

The preparation of this EIR included the concerns and issues rasied by the community. On April 28, 1987, the City of San Jose held a scoping meeting for the proposed San Jose Arena facility project. The purpose of this meeting was to allow the City of San Jose, acting as the Lead Agency on the EIR, to receive testimony regarding issues of public and community concern to be addressed in the EIR. Of the 50 to 60 citizens attending the scoping meeting, 20 provided public testimony regarding environmental issues or the desirability of site selection. Two of the participants represented neighborhood associations. A copy of the transcript of this scoping meeting is presented in Part Five of this document. Comments from the community have been utilized in the analysis of the environmental impacts and have been incorporated into this environmental document.

SUMMARY

The City of San Jose has determined that an Environmental Impact Report (EIR) is required for the proposed San Jose Arena Facility project. The arena facility is presently proposed to be completed for operation in 1991. The proposed project is the development of a 20,000 seat arena facility on one of three sites that are evaluated in this environmental document. This arena facility is being proposed and sponsored by the City of San Jose. The EIR addresses three alternative sites. Although this is an alternative analysis EIR, this document will serve as the EIR for the implementation of the proposed San Jose Arena Facility project. This EIR, pursuant to the California Environmental Quality Act, discusses in detail primarily those impacts determined to have a significant adverse impact.

SITE A

LAND USE

1. **Impact:** Implementation of the arena facility project would substantially alter the character of the project site and the surrounding area. The primary land use impacts of developing the proposed arena facility center around converting the project site from its existing combination of residential, commercial and industrial uses to a higher public land use with a more intense land use. **(Significant and Unavoidable)**

   Mitigation (Included in the Project): Careful siting, including landscaping, setbacks and building orientation and architectural treatment would reduce the impacts on adjacent and surrounding land uses. **(Significant and Unavoidable)**

2. **Impact:** Residential neighborhoods in the immediate vicinity of the project site would be impacted as a result of frequent and significant increases in traffic, on-street parking, littering and noises from vehicular and pedestrian traffic. **(Significant and Unavoidable)**

   Mitigation (Included in Project): Intrusion of arena patron traffic and on-street parking could be reduced by temporary barricade systems (during peak arena events), residential parking sticker programs and increased traffic police controls. **(Significant and Unavoidable)**

SITE B

1. **Impact:** The proposed arena facility would substantially alter the character of the project site and the area to the south and west through the elimination of the existing land uses on the project site. The primary land use impacts of developing the proposed arena facility would center around the conversion of the project site from its existing mixture of residential, commercial and industrial land uses to a higher, more intense public use. **(Significant and Unavoidable)**

   Mitigation (Included in Project): Careful siting, including landscaping, setbacks and the orientation and architectural treatment of the area, would reduce the impacts on adjacent and surrounding land uses. **(Significant and Unavoidable)**

2. **Impact:** Residential neighborhoods in the immediate vicinity of the proposed project would be impacted as a result of frequent and significant increases in traffic, on-street parking, littering and noise from arena vehicular and pedestrian traffic. **(Significant and Unavoidable)**

   Mitigation (Included in Project): Intrusions of arena patron traffic and on-street parking could be reduced by temporary barricades (during peak arena events) systems, residential parking sticker programs and increased traffic police controls. **(Significant and Unavoidable)**

SITE C

1. **Impact:** Implementation of the proposed project would convert 51 acres of fallow open space land to an urban public use. This use would be consistent with the General Plan designation of Public/Quasi-Public for the site. **(Non-Significant)**

   Mitigation: None required.

2. **Impact:** Secondary impacts resulting from the proposed land use change would include increased noise and traffic impacts. **(Significant)**

   Mitigation: Mitigation measures for both traffic circulation and noise impacts are presented subsequently in their respective sections. **(Non-Significant)**

	SITE A	SITE B	SITE C
LAND USE	3. **Impact:** The proposed project is inconsistent with the City of San Jose's General Plan designation for the project site. **(Significant)** **Mitigation (Included in Project):** Amend the General Plan to allow for a Public/Quasi-Public land use on the project site. **(Non-Significant)**	3. **Impact:** The proposed project is not consistent with the City of San Jose's General Plan designation for the project site. **(Significant)** **Mitigation (Included in Project):** Amend the General Plan to allow for a Public/Quasi-Public use on the project site. **(Non-Significant)**	
TRAFFIC AND CIRCULATION	1. **Impact:** Implementation of the proposed project (at both attendance levels) would significantly impact up to 17 intersections for both the level of service and site access and intersection operations. It is not feasible to mitigate all of the intersections to nonsignificant levels. Of these significant impacts, the most severe impacts would occur during the Weekday PM peak hour with a 6:00 PM start time, which is anticipated to occur three to five times per year. **(Significant)** **Mitigation (Presently Included in Project):** Mitigation measures for five of these impacted intersections are presently included in the proposed project. The summary of these impacted and proposed mitigated intersections are shown in comparision to Site B on the summary matrix. **(Significant)**	1. **Impact:** Implementation of the proposed project (at both attendance levels) would significantly impact up to 14 intersections for both the level of service and site access and intersection operations. It is not feasible to mitigate all of these impacts at all of the intersections. Of these significant impacts, the most severe impacts occur during the Weekday PM peak hour with a 6:00 PM start time, which is anticipated to occur three to five times per year. **(Significant)** **Mitigation (Presently Included in Project):** Mitigation measures for five of these impacted intersections are presently included in the proposed project. The summary of these impacted intersections are shown in comparision to Site A on the summary matrix. **(Significant)**	1. **Impact:** With or without the implementation of the proposed arena facility, intersections along State Route 237 (i.e., Zanker Road and North First Street) would operate at unacceptable levels. **(Significant)** **Mitigation (Not Presently Included in Project):** Under the Measure A program, State Route 237 is planned to be upgraded to a full freeway facility with interchanges planned at both of these intersections. Since the time frame for these improvements is not certain, no interchanges were assumed for this EIR. This improvement project should be a priority item under the Measure A program, whether or not the arena facility is built on the project site. **(Non-Significant if Mitigation is Implemented)**
PARKING	1. **Impact:** Limited on-site parking (2,020 spaces) would be provided at the proposed arena facility. **(Significant)** **Mitigation (Included in Project):** All on-site spaces should be reserved for patrons. A comprehensive long-term plan should be prepared to provide parking for arena employees at a location away from the project site. In order to assure the availability of privately-owned parking facilities for arena patrons, arrangements should be made with the owners of these facilities. The parking demand for afternoon events should be monitored closely. If the demand exceeds the supply, arrangements should be made to increase the parking at or near the project site. **(Non-Significant)**	1. **Impact:** Limited on-site parking (2,025 spaces) would be provided for the arena patrons at the proposed arena facility. **(Significant)** **Mitigation (Included in Project):** All on-site parking spaces should be reserved for the arena patrons. A comprehensive long-term plan should be prepared to provide parking for arena employees at a location away from the project site. In order to assure the availability of privately-owned parking facilities for arena patrons, arrangements should be made with the owners of these facilities. The parking demand for the afternoon events should be closely monitored. If the demand exceeds the available parking supply, arrangements would be made to increase the parking at or near the project site. **(Non-Significant)**	1. **Impact:** Implementation of the proposed arena facility would necessitate the need for 5,600 parking spaces for a 17,500 seat arena and 6,400 parking spaces for a 20,000 seat arena. **(Significant)** **Mitigation (Included in Project):** Due to the project site's suburban location and because there is no other parking supply in the vicinity, 6,625 parking spaces would be provided for a 20,000 seat arena. These parking spaces would be provided on-site. **(Non-Significant)**

SUMMARY OF TRANSPORTATION IMPACTED INTERSECTIONS AND MITIGATION

	SITE A YEAR 1991											
	20,000 ATTENDANCE						17,500 ATTENDANCE					
	A WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.	A WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.
Alameda at Taylor/Naglee	◇						◇					
Coleman at Taylor	○											
S.R. 87 at Taylor	○						○					
San Pedro at Julian	◇	◇			◇		◇	◇			◇	
Market at Julian	○						○					
Alameda at Julian/Hanchett	◇						◇					
Stockton at Julian	○						○					
SR 87 Off-Ramp (SB) at Julian	○						○					
SR 87 Off-Ramp (NB)/Notre Dame at Julian	○						○					
Stockton at Alameda	◇	◇					◇	◇				
Santa Teresa at Santa Clara	◇	◇			◇		◇	◇				◇
Autumn at Julian	○	○	◆	◆	○	◆	○	○	◆	◆	○	◆
Montgomery at Julian	○	◆	◆	◆	◆	◆	○	◆	◆	◆	◆	◆
Autumn at Santa Clara	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Cahill at Alameda	○											
Montgomery at Alameda	○	○	○	◆	○	◆	○	○	○	◆	○	◆
S.R. 87 Off-Ramp (NB) at Santa Clara	○		○		○	○	○		○		○	

	SITE B YEAR 1991											
	20,000 ATTENDANCE						17,500 ATTENDANCE					
	A WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.	A WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.
Alameda at Taylor/Naglee	◇						◇					
Coleman at Taylor	○						○					
S.R. 87 at Taylor	○						○					
San Pedro at Julian	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Market at Julian	○						○					
Alameda at Julian/Hanchett	◇						◇					
Stockton at Julian	○						○					
SR 87 Off-Ramp (SB) at Julian	○											
SR 87 Off-Ramp (NB)/Notre Dame at Julian	○						○					
Stockton at Alameda	◇	◇					◇	◇				
Santa Teresa at Santa Clara	◇	◇			◇		◇	◇			◇	
Autumn at Julian	○	◆	◆	○	◆	◆	○	◆	◆	○	◆	◆
Notre Dame at Santa Clara	○						○					
S.R. 87 Off-Ramp (SB) at Coleman	○						○					

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

- A – Weekday PM Peak Hour with a starting time of 6:00 PM.
- B – Weekday PM Peak Hour with a starting time of 7:30 PM.
- C – Weekday Evening Peak Hour with a starting time of 7:30 PM.
- D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.
- E – Friday Evening Peak Hour with a starting time of 7:30 PM.
- F – Saturday Evening Peak Hour with a starting time of 7:30 PM.

LEGEND

- ○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)
- ◇ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT
- △ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA
- ◆ NECESSARY FOR SITE ACCESS AND INTERSECTION OPERATION

SUMMARY OF TRANSPORTATION IMPACTED INTERSECTIONS AND MITIGATION

SITE A YEAR 2000

	20,000 ATTENDANCE A: Weekday PM Pk. Hr. 6:00 PM Event	20,000 B: Weekday PM Pk. Hr. 7:30 PM Event	20,000 C: Weekday Evening Pk. Hr.	20,000 D: Weekday Late Evening Pk. Hr.	20,000 E: Friday Evening Pk. Hr.	20,000 F: Saturday Evening Pk. Hr.	17,500 ATTENDANCE A: Weekday PM Pk. Hr. 6:00 PM Event	17,500 B: Weekday PM Pk. Hr. 7:30 PM Event	17,500 C: Weekday Evening Pk. Hr.	17,500 D: Weekday Late Evening Pk. Hr.	17,500 E: Friday Evening Pk. Hr.	17,500 F: Saturday Evening Pk. Hr.
Alameda at Taylor/Naglee	△											
Coleman at Taylor	○						○					
S.R. 87 at Taylor	○	○	○		○		○	○	○		○	
San Pedro at Julian	△											
Market at Julian	△											
Alameda at Julian/Hanchett	◈						◈					
Stockton at Julian	○						○					
SR 87 Off-Ramp (SB) at Julian	○						○					
SR 87 Off-Ramp (NB)/Notre Dame at Julian	△											
Stockton at Alameda	△											
Santa Teresa at Santa Clara	○	○	○		○	○	○	○	○		○	
Riverfront at Julian	○	○	◆	◆	○	◆	○	○	◆	◆	○	◆
Montgomery at Julian	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Riverfront at Santa Clara	○	○	○	◆	○	◆	○	○	○	◆	○	◆
Cahill at Alameda	△											
Montgomery at Alameda	○	○	○	◆	○	◆	○	○	○	◆	○	◆
S.R. 87 Off-Ramp (NB) at Santa Clara	○		○		○		○		○		○	

SITE B YEAR 2000

	20,000 ATTENDANCE A: Weekday PM Pk. Hr. 6:00 PM Event	20,000 B: Weekday PM Pk. Hr. 7:30 PM Event	20,000 C: Weekday Evening Pk. Hr.	20,000 D: Weekday Late Evening Pk. Hr.	20,000 E: Friday Evening Pk. Hr.	20,000 F: Saturday Evening Pk. Hr.	17,500 ATTENDANCE A: Weekday PM Pk. Hr. 6:00 PM Event	17,500 B: Weekday PM Pk. Hr. 7:30 PM Event	17,500 C: Weekday Evening Pk. Hr.	17,500 D: Weekday Late Evening Pk. Hr.	17,500 E: Friday Evening Pk. Hr.	17,500 F: Saturday Evening Pk. Hr.
Alameda at Taylor/Naglee	△											
Coleman at Taylor	○						○					
S.R. 87 at Taylor	○	○	○		○		○	○	○		○	
San Pedro at Julian	△											
Market at Julian	○						○					
Alameda at Julian/Hanchett							◈					
Stockton at Julian	○						○					
SR 87 Off-Ramp (SB) at Julian	○						○					
SR 87 Off-Ramp (NB)/Notre Dame at Julian	○			○			○					
Stockton at Alameda	△											
Santa Teresa at Santa Clara	◈	◈	◈		◈	◈	◈	◈	◈		◈	◈
Autumn at Julian	△											
Riverfront at Julian	○	○	○	◆	○	○	○	○	○	◆	○	○
Riverfront at Santa Clara	○						○					
Notre Dame at Santa Clara	○						○					
S.R. 87 Off-Ramp (SB) at Coleman	△											

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

A – Weekday PM Peak Hour with a starting time of 6:00 PM.

B – Weekday PM Peak Hour with a starting time of 7:30 PM.

C – Weekday Evening Peak Hour with a starting time of 7:30 PM.

D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.

E – Friday Evening Peak Hour with a starting time of 7:30 PM.

F – Saturday Evening Peak Hour with a starting time of 7:30 PM.

LEGEND

○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)

◈ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT

△ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA

◆ NECESSARY FOR SITE ACCESS AND INTERSECTION OPERATION

	SITE A	SITE B	SITE C
PARKING	2. **Impact:** Implementation of the proposed project could create significant impacts in existing neighborhoods from the intrusion of arena patron traffic and increased demands for on-street parking. **(Significant)** **Mitigation (Included in Project):** Neighborhood impacts in the immediate vicinity of the project site from intrusion of arena patron traffic and on-street parking could be reduced by a temporary (during peak arena events) barricade system that would exclude arena traffic. Additionally, implementation of a residential permit parking program would reduce the impacts of increased on-street parking from arena patrons. **(Significant)** **Mitigation (Not Presently Included in Project):** Increased traffic in neighborhoods could, in some cases, be reduced by a traffic diverter system that would restrict through traffic. Implementation of this mitigation measure could create secondary impacts on other areas, and would be subject to General Plan conformance and separate environmental review. **(Non-Significant if Mitigation is Implemented)**		
PEDESTRIANS AND NEIGHBORHOODS	1. **Impact:** The sidewalk on the southerly side of Santa Clara Street between Almaden Boulevard and Autumn Street is only seven-feet wide. **(Significant)** **Mitigation (Not Presently Included in Project):** Widen this section of the sidewalk to 12 feet. The existing traffic signals along Santa Clara Street between Market and Cahill Streets would require new signal phasing and timing plans for accommodating future automobile and pedestrian traffic. Pedestrian ramps should be installed at the following intersections: Delmas/Santa Clara, Autumn/Santa Clara, Montgomery/Santa Clara, and State Route 87 off-ramp (NB) and Santa Clara Street. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** Existing sidewalk facilities in the vicinity of the proposed project site are inadequate to meet the demand generated by the proposed arena facility. **(Significant)** **Mitigation (Included in Project):** The proposed extension of North Almaden Boulevard under State Route 87 should be designed with sidewalks to provide a pedestrian connection from east of State Route 87 to the proposed arena facility. The proposed area in front of the arena facility (on the northerly side of Julian Street) should be connected with the sidewalk on Julian Street to provide direct access between the sidewalk and the plaza. The existing Old Julian Street Bridge should be converted into a pedestrian bridge to provide access to the arena from the westerly side of the Guadalupe River. The section of Bassett Street between San Pedro Street and the arena facility should provide 10 foot sidewalks. **(Non-Significant)**	1. **Impact:** Due to the project site's location and the current development patterns in the area, neither pedestrian nor parking impacts are anticipated in the adjoining neighborhoods. **(Non-Significant)** **Mitigation (Not Presently Included in Project):** As future development proceeds on the surrounding vacant parcels, it would be necessary to plan and design the roadway system in such a manner so that arena traffic could not infiltrate the neighborhood roadways. **(Non-Significant)**

SITE A

PEDESTRIAN AND NEIGHBORHOOD

2. **Impact:** Traffic would increase throughout existing residential neighborhoods. **(Significant)**

   Mitigation (Not Presently Included in Project): A commitment should be made towards planning, designing and implementing a neighborhood traffic control program (subject to separate environmental review). If it is determined that arena patrons are utilizing residential roadways, it would be necessary to erect temporary barricades. It is also recommended that the residents request a residential permit parking plan. **(Non-Significant if Mitigation is Implemented)**

3. **Impact:** Implementation of the proposed project would bring large volumes of people into an area that currently has a low nighttime population. This could be disruptive to residents living in the vicinity of the site. **(Significant)**

   Mitigation (Not Presently Included in Project): Implementation of roadway signage and/or advertising programs that would direct arena patrons to major parking facilities in the downtown area would minimize impacts to existing residential neighborhoods. **(Significant)**

4. **Impact:** The influx of large volumes of pedestrians to the project area would significantly impact existing intersections. **(Significant)**

   Mitigation (Included in Project): Major intersections that would experience significant pedestrian levels of service should be controlled by traffic control officers during peak arena events. **(Significant)**

5. **Impact:** Street lighting in the vicinity of the project site is inadequate. **(Significant)**

   Mitigation (Included in Project): Street lighting should be improved for the section of Santa Clara Street between Market Street and the westerly boundary of the project site. The area in front of the arena facility and the east and west sides of the structure should be illuminated with floodlights to provide a safe environment for pedestrians. **(Non-Significant)**

SITE B

2. **Impact:** The existing traffic signals in the project vicinity are not properly equipped to accommodate large volumes of pedestrians. **(Significant)**

   Mitigation (Included in Project): The existing traffic signals along Julian Street, between Market Street and North Almaden Boulevard, will require new signal phasing and timing plans for accommodating anticipated future automobile and pedestrian traffic. **(Non-Significant)**

3. **Impact:** Street lighting in the vicinity of the project site is inadequate. **(Significant)**

   Mitigation (Included in Project): Street lighting should be improved for the section of Julian Street between Market Street and Montgomery Street. The area in front of the arena facility and the east and west sides of the structure should be illuminated with floodlights to provide a safe environment for pedestrians. **(Non-Significant)**

4. **Impact:** Implementation of the proposed arena facility would increase vehicular on-street parking and pedestrian traffic in the surrounding neighborhoods. **(Significant)**

   Mitigation (Included in Project): A residential parking permit program could be implemented if the residents in the surrounding neighborhoods request such a measure. Additional measures of reducing traffic in the residential neighborhoods would be to restrict off-street parking in these areas, or to erect temporary (during peak events) barricade systems to eliminate arena traffic from these residential roadways. **(Non-Significant)**

5. **Impact:** Implementation of the proposed project would bring large volumes of people into an area that currently has a low nighttime population. This could be disruptive to residents living in the vicinity of the project site. **(Significant)**

   Mitigation (Not Presently Included in Project): Implementation of roadway signing and/or advertising programs that would direct arena patrons to major parking facilities in the downtown area would minimize impacts to existing residential neighborhoods. **(Significant)**

SITE C

	SITE A	SITE B	SITE C
AIR QUALITY	1. **Impact:** Under severe atmospheric stagnation, which occurs a few times a year, ambient standards could be exceeded by arena patron vehicles and total project emissions. **(Significant)** **Mitigation (Included in Project):** Achieve maximum efficiency through a well-designed site plan. Implement General Plan goals and policies, where appropriate, to maintain acceptable levels of air quality. **(Non-Significant)**	1. **Impact:** Under severe atmospheric stagnation, which occurs a few times a year, ambient standards could be exceeded by arena patron vehicles and total project emissions. **(Significant)** **Mitigation (Included in Project):** Achieve maximum efficency through a well-designed site plan which allows for adequate circulation of air currents. Implement General Plan goals and policies, where appropriate, to maintain acceptable levels of air quality. **(Non-Significant)**	1. **Impact:** Traffic associated with the proposed project will not significantly increase air quality concentrations at residential receptors on the vicinity of the project site. **(Non-Significant)** **Mitigation:** None required.
	2. **Impact:** Minimal circulation through the proposed parking structures could create an environment where CO levels are exceeded. **(Significant)** **Mitigation (Not Presently Included in Project):** Open-architecture design features, promoting convection and wind-driven ventilation, would be a minimum recommendation. **(Non-Significant if Mitigation is Implemented)**	2. **Impact:** Minimal air circulation through the proposed parking structures could create an environment where CO levels are exceeded. **(Significant)** **Mitigation (Not Presently Included in Project):** Open-architecture design features which promote convection and wind-driven ventilation would be a minimum recommendation. **(Non-Significant if Mitigation is Implemented)**	2. **Impact:** Assuming poor atmospheric conditions, the proposed surface parking area adjacent to the easterly side of Zanker Road would generate an approximately 11 parts per million concentration of CO. This is less than the allowable standard of 12 parts per million. **(Non-Significant)** **Mitigation (Not Presently Included in Project):** Implement traffic engineering changes which would improve traffic flow, such as more lanes, turning lanes and signalized intersections. An average vehicle speed of five miles per hour can achieve a 20 percent reduction in CO and hydrocarbon emissions. **(Non-Significant)**
COMMUNITY NOISE	1. **Impact:** During the PM peak hour, Evening peak hour and Late Evening peak hour, audible increases in noise from arena patrons and vehicles may be experienced in some neighborhoods in the project area. **(Significant)** **Mitigation (Included in Project):** The use of barricades (during peak arena events) to block non-arterial residential roadways may help to reduce traffic flows into these areas, thereby maintaining the concentration of noise along the major thoroughfares. **(Significant and Unavoidable)**	1. **Impact:** Depending on the amount of arena traffic using adjacent residential roadways, ambient noise levels for these residential areas could be exceeded. **(Significant)** **Mitigation (Included in Project):** The use of temporary barricades on non-arterial roadways during arena events could decrease potential noise impacts to the residential areas. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** Implementation of the proposed project would create an audible increase in traffic noises during the PM peak hour. Additionally, late-night L_{eq} levels created by project-generated traffic would be exceeded. **(Significant)** **Mitigation (Not Presently Included in Project) :** Construct a 10 foot high barrier along the existing mobile home park property line bordering Zanker Road. Flanking barrier segments should extend along the northerly and southerly property lines for a distance of 111 feet west of the main barrier at a ten foot level, then reduce to six feet in height for an additional distance of 467 feet. The barrier should be constructed with a minimum surface weight of four pounds per square-foot. **(Non-Significant if Mitigation is Implemented)**
	2. **Impact:** Noises emanating from the arena facility would vary in intensity, depending on the roofing material utilized. **(Significant)** **Mitigation (Included in Project):** It is recommended that the arena facility be constructed with a solid roof structure to contain sounds within the immediate site vicinity. **(Non-Significant)**	2. **Impact:** The proposed arena and its associated facilities have the potential to create disturbances in the areas immediately surrounding the proposed facility. **(Significant)** **Mitigation (Not Presently Included in Project):** An arena roof of fixed or moveable design would reduce noises emanating from the arena facility by a minimum of 30 dB for roof surface weights of one pound per square-foot or more. The arena facility should be designed to achieve a minimum building shell insertion loss of STC 30. No permanent, significant openings should be included between the exterior and interior seating spaces. **(Non-Significant if Mitigation is Implemented)**	

	SITE A	SITE B	SITE C
COMMUNITY NOISE	3. **Impact:** Ambient noise levels at the project site may impact surrounding neighborhoods. **(Significant)** **Mitigation (Not Presently Included in Project):** The arena facility should be designed to achieve a minimum building shell insertion loss of STC 30. No permanent openings should be included between the exterior and interior seating spaces. Windows and doorways should provide the STC 30 rating in the closed position. General Plan noise standards could be achieved through proper construction and engineering methods. **(Non-Significant if Mitigation is Implemented)** 4. **Impact:** Construction activities would temporarily increase ambient noise levels in-the project vicinity. **(Temporary Significant and Unavoidable)** **Mitigation (Not Presently Included in Project):** All construction equipment should be properly muffled. Construction activities should be restricted to the weekday hours of 7:00 AM to 7:00 PM. Inform the public of proposed construction timelines to minimize potential annoyance related to construction noise. **(Temporary Significant and Unavoidable)**	3. **Impact:** During the construction phase of the proposed project, high noise levels in the site vicinity may temporarily be created. **(Temporary Significant and Unavoidable)** **Mitigation (Not Presently Included in Project):** Utilization of "new technology" and muffled equipment would reduced impacts associated with construction noise. In addition, work hours should be restricted to 7:00 AM to 7:00 PM. However, construction noises will still create significant impacts at various times during the construction process. **(Temporary Significant and Unavoidable)**	2. **Impact:** Noise impacts generated from within the arena facility would vary in intensity depending on the construction materials used. **(Significant)** **Mitigation (Not Presently Included in Project):** The arena facility should be designed to achieve a minimum building shell insertion loss of STC 23. No permanent, significant openings should be included between the exterior and interior seating areas. Windows and doorways should provide the STC 23 rating in the closed position. These elements should be maintained closed when the arena facility is in use. **(Non-Significant if Mitigation is Implemented)** 3. **Impact:** During the construction phase of the proposed project, high noise levels may temporarily be created. **(Significant)** **Mitigation (Not Presently Included in Project):** Utilization of "new technology" and properly muffled equipment would minimize these impacts. In addition, work hours should be restricted to 7:00 AM to 7:00 PM. In any event, there will be some temporary significant noise level increases that cannot be adequately mitigated. **(Non-Significant if Mitigation is Implemented)**
GEOLOGY AND SOILS	1. **Impact:** Some of the soils at the project site in the vicinity of the Guadalupe River may liquefy when subjected to seismic loading. **(Significant)** **Mitigation (Included in Project):** If facilities are to be constructed in this area, it is recommended that they be set back from the top of the river bank or that an engineering solution be applied to stabilize the river bank. **(Non-Significant)** 2. **Impact:** The level of the groundwater in the project area could adversely affect the proposed subsurface level of the arena facility. **(Significant)** **Mitigation (Included in Project):** If the arena facility is to be constructed 15 foot below the existing grade, some dewatering may be required during construction. It is recommended that the basement be watertight. **(Non-Significant)**	1. **Impact:** Construction of the proposed arena facility would approach the depths of the existing groundwater table. **(Significant)** **Mitigation (Included in Project):** If the proposed arena facility is to be constructed 15 feet below the existing grade, some dewatering may be required. Additionally, the subsurface area should be watertight. **(Non-Significant)** 2. **Impact:** Potentially liquefiable soils were identified adjacent to the Guadalupe River. **(Significant)** **Mitigation (Included in Project):** If facilities are to be constructed in this area, they should be set back from the top of the bank. For all construction, an engineering solution should be applied to stabilize the soil. **(Non-Significant)**	1. **Impact:** Construction of the proposed arena facility would approach the depths of the existing groundwater table. **(Significant)** **Mitigation (Included in Project):** If the arena facility is to be constructed 15 feet below the existing grade, some dewatering may be required. The portion of the facility constructed below the existing grade should be watertight. **(Non-Significant)**

	SITE A	SITE B	SITE C
GEOLOGY AND SOILS	3. **Impact:** The proposed arena facility could be subjected to severe shaking in the event of an earthquake. **(Signficant)** **Mitigation (Included in Project):** A structural engineer should be consulted to determine if the characteristic period of the site soils needs to be determined, and if a dynamic analysis of the site soils would be warranted prior to construction. **(Non-Significant)** 4. **Impact:** The project site could be subjected to settling after the construction of the arena facility. **(Significant)** **Mitigation (Included in Project):** Additional studies should include a detailed estimate of the expected settlement of the proposed arena facility. This estimate will require a preliminary layout of the arena columns and an estimate of their loads. **(Non-Significant)**	3. **Impact:** Some of the loose, granular soils at this site may be expected to densify when subjected to strong ground shaking. This could result in local or areal settlement of the project site. **(Significant)** **Mitigation (Included in Project):** Structures could be built near the river bank if measures are implemented to stabilize the banks. Otherwise, structures should be set back from the top of the bank. **(Non-Significant)** 4. **Impact:** The project site, as is the entire Bay Area, is susceptible to severe earth shaking in the event of an earthquake. **(Significant)** **Mitigation (Included in Project):** Upon commencement of building design plans, a structural engineer should be consulted to determine if the characteristic period of the site soils needs to be determined, and if a dynamic analysis of the site soils would be warranted. These analyses would provide information in order to provide specific foundation design requirements. **(Non-Significant)**	2. **Impact:** Historic evidence indicates that the banks of Coyote Creek are prone to lateral spreading and landsliding during a seismic event. **(Significant)** **Mitigation (Included in Project):** Structures built in the vicinity of the creek banks should be set back a safe distance, or an engineering solution should be implemented to mitigate the possible effects of an earthquake. As shown on the site plans for the proposed project, no structures would be located within 1,500 feet of Coyote Creek. **(Non-Significant)** 3. **Impact:** The project site is subjected to some settlement of soils. **(Significant)** **Mitigation (Included in Project):** Additional studies should include a detailed estimate of the expected settlement of the proposed arena facility. This settlement estimate could be used to determine if a shallow foundation could be an acceptable foundation for the proposed arena facility. **(Non-Significant)**
HYDROLOGY AND FLOODING	1. **Impact:** Development of the project site has the potential to increase sediment deposition in storm drains and channels. **(Significant)** **Mitigation (Included in Project):** Schedule necessary earthwork during the dry season. Earthwork during the rainy season should be separated from the existing roadway gutters and storm drains through the use of ditches, berms or filtration barriers such as hay bales. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the runoff is released from the project site. Roadways surrounding the construction area should be swept regularly to collect sediment deposited on the roadways before it is washed into the storm drains or channels. **(Non-Significant)**	1. **Impact:** The majority of the project site (on the easterly side of the Guadalupe River) is within the 100 year floodplain as defined by the Flood Insurance Study. **(Significant)** **Mitigation (Included in Project):** The potential flood hazard on the project site can be mitigated by building the proposed arena facility (and other auxiliary structures which must be flood protected) on fill or by incorporating structural flood protection measures in the design of the proposed facilities. The proposed arena should be flood protected to a minimum elevation of 77 feet (National Geodetic Vertical Datum), plus freeboard, to meet the provisions of the Federal Emergency Management Agency's floodplain management ordinance. To prevent any adverse effects on adjacent floodplain conditions, the surface parking areas, access roadways and landscaping areas should be at or below the existing grade elevations to allow flood flows through the project site. **(Non-Significant)**	1. **Impact:** The entire project site is located within the 100 year floodplain area as defined by the Flood Insurance Study. **(Significant)** **Mitigation (Included in Project):** Construct the arena facility (and other auxiliary facilities which must be flood-protected) on fill or incorporate structural flood protection measures in the design of the facilities. The proposed arena facility should be flood-protected to a minimum elevation of two and one-half feet above the existing grade to meet the provisions of the Federal Emergency Management Agency's floodplain management policy. To prevent any adverse effects on floodplain conditions, the surface parking areas, access roadways and landscaping areas should be at or below existing grade elevations to allow flood flows through the project site. **(Non-Significant)**

	SITE A	SITE B	SITE C
HYDROLOGY AND FLOODING	2. **Impact:** Construction on the project site could increase sediment deposition in storm drains and channels. **(Significant)** **Mitigation (Not Presently Included in Project):** Schedule necessary earthwork during the dry season to prevent runoff erosion. Earthwork during the rainy season should be separated from the roadway gutters and storm drains by ditches, berms or filtration barriers such as hay bales. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the run-off is released off-site. Roadways surrounding the construction area should be swept regularly to collect all sediment deposited on the roadways before it is washed into the storm drains or channels. **(Non-Significant)**	2. **Impact:** Development of the project site could increase sediment deposition in storm drains and channels. **(Significant)** **Mitigation (Included in Project):** Scheduling necessary earthwork during the dry season would prevent most runoff erosion, and watering of exposed soils would limit wind erosion. Earthwork during the rainy season should be separated from the existing roadway gutters and storm drains through the use of ditches, berms or filtration barriers such as hay bales. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the runoff is released from the project site. **(Non-Significant)**	
VEGETATION AND WILDLIFE	1. **Impact:** Implementation of the proposed project could impact the existing vegetation through vegetation removal for project construction. **(Significant)** **Mitigation (Not Presently Included in Project):** Retention of as many of the existing trees as possible through site design is recommended. If retention of ordinance size trees is not possible, a replacement ratio of 3:1 (with 24 inch box specimens) is recommended. To enhance the botanical diversity of the project area, landscaping with native plant species is encouraged throughout the project site and area. Development adjacent to the Guadalupe River Park corridor should be consistent with the guidelines developed for the River Park Master Plan. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** Implementation of the proposed project could impact the existing vegetation through vegetation removal for project construction. **(Significant)** **Mitigation (Not Presently Included in Project):** Retention of as many of the existing trees as possible through site design would reduce the significance of this impact. If retention of ordinance size trees is not possible, a replacement ratio of 3:1 (with 24 inch box specimens) should be implemented. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** Increased public access and use adjacent to and throughout the Guadalupe River corridor may impact the existing vegetation through off-trail use or the clearing of vegetation for the arena auxiliary facilities. **(Significant)** **Mitigation (Not Presently Included in Project):** Development adjacent to the Guadalupe River corridor should be consistent with the guidelines developed for the Guadalupe River Park Master Plan. This would include the use of native plants and non-natives of high wildlife value in the landscaping plan and a minimum development buffer of 50 feet from the outside edge of the existing riparian vegetation or the top of the riverbank, whichever is greater. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** Implementation of the proposed arena facility would necessitate the removal of more than 30 small or medium sized trees. **(Significant)** **Mitigation (Not Presently Included in Project):** Retain as many of the existing larger trees as possible, particularly the native trees, through site design. For those ordinance trees removed, replacement should be with native trees (24 inch box specimens) at a ratio of 3:1. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** The proposed project would reduce the wildlife habitat value of the site with the removal of present vegetation and replacing it with paving, the arena facility and ornamental landscaping. **(Significant)** **Mitigation (Not Presently Included in Project):** Wildlife habitat value could be increased by using native species of trees and shrubs for landscaping materials. Adverse effects to nocturnal wildlife could be reduced by using lighting standards that direct light downward and away from the riparian corridor of Coyote Creek. **(Non-Significant if Mitigation is Implemented)**

	SITE A	SITE B	SITE C
VEGETATION AND WILDLIFE	3. **Impact:** Lighting standards from the parking areas may pose a serious problem to nocturnal foraging predatory species and their prey. **(Significant)** **Mitigation (Not Presently Included in Project):** Lighting standards should have downward-directed light, and should not be placed adjacent to the existing riparian corridor. **(Non-Significant if Mitigation is Implemented)**	**Impact:** Impacts to the existing riparian habitat may result from construction activities and frequent pedestrian use of the bridges. **(Significant)** **Mitigation (Not Presently Included in Project):** Public access along the Guadalupe River corridor should be restricted to existing walkways and bridges. **(Non-Significant if Mitigation is Implemented)**	
URBAN SERVICES	1. **Impact:** The proposed arena facility could necessitate the need for additional police personnel. **(Significant)** **Mitigation (Not Presently Included in Project):** Provide for additional police personnel that would be required for security and traffic purposes at the proposed arena facility. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** An existing gas regulator located on the PG&E site would need to be relocated. **(Significant)** **Mitigation (Included in Project):** Conduct further engineering studies for the relocation of the existing gas regulator to a location northerly of the project site. **(Non-Significant)** 3. **Impact:** Some of the existing infrastructure would need to be upgraded or replaced through the implementation of the proposed project. **(Significant)** **Mitigation (Not Presently Included in Project):** Abandon the existing eight inch sanitary sewer line in Montgomery Street. Replace the existing 36 inch sanitary sewer line in Autumn Street between Santa Clara and Saint John Streets. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** Implementation of the proposed arena facility would impact existing police services in the project area. **(Significant)** **Mitigation (Not Presently Included in Project):** A minimum of four to five additional officers would be required to accommodate vehicular and pedestrian traffic before and after arena events. Additional police personnel may be required for security and traffic purposes at the proposed facility. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** The 12 inch fire-flow pressure main located on the project site would have to be relocated and upgraded upon implementation of the proposed project. **(Significant)** **Mitigation (Not Presently Included in Project):** Install a new fire-flow water main in the project vicinity to improve the fire-flow characteristics in the project area to an acceptable level. **(Non-Significant if Mitigation is Implemented)** 3. **Impact:** The existing overhead utility lines within the project area are inconsistent with City of San Jose policy. **(Significant)** **Mitigation (Included in Project):** Underground all new and existing utility lines on the project site. **(Non-Significant)**	1. **Impact:** Implementation of the proposed arena facility would necessitate the need for additional police personnel for vehicular and pedestrian control. **(Significant)** **Mitigation (Not Presently Included in Project):** Additional police personnel would be required for security and traffic purposes at the proposed arena facility. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** The proposed arena facility is located in an area that is not within the recommended response time of four minutes as set forth by the City of San Jose. **(Significant)** **Mitigation (Not Presently Included in Project):** Construct a new fire station at the proposed location near Agnews State Hospital. This station should be equipped with one truck company and one aerial company. Construction of this station would significantly reduce the response time to the project site. This station is scheduled for construction in 1988 to 1989, prior to the opening of the proposed arena facility. **(Non-Significant if Mitigation is Implemented)**

	SITE A	SITE B	SITE C
URBAN SERVICES	4. **Impact:** The fire-flow pressure in the project area is inadequate to accommodate the proposed arena facility. **(Significant)** **Mitigation (Not Presently Included in Project):** Install a new water pressure line service to the area that would improve the fire-flow characteristics in the project area to an acceptable level. **(Non-Significant if Mitigation is Implemented)**	4. **Impact:** The existing storm drain lines are inadequate to accommodate the proposed project. **(Significant)** **Mitigation (Not Included in Project):** Install a new 24 inch storm drain line in Autumn Street from St. John Street to Santa Clara. **(Non-Significant if Mitigation is Implemented)**	
	5. **Impact:** The existing overhead utility lines within the project area are inconsistent with City of San Jose policies. **(Significant)** **Mitigation (Included in Project):** Underground all new and existing utility lines on the project site. **(Non-Significant)**		
	6. **Impact:** The existing storm drain lines are inadequate to accommodate the proposed project. **(Significant)** **Mitigation (Not Presently Included in Project):** Install a new 24 inch storm drain line in Autumn Street from St. John Street to Santa Clara Street, continuing easterly via Santa Clara Street to the Guadalupe River. **(Non-Significant if Mitigation is Implemented)**		
AESTHETIC RESOURCES	1. **Impact:** Implementation of the proposed arena facility would alter the project site from its current urbanized character with the introduction of a single structure in mass and scale which would be greater than the existing development. **(Significant)** **Mitigation (Not Presently Included in Project):** Further evaluation of the site design impacts should be conducted prior to the architectural review process utilized by the City of San Jose. Street trees could be planted along all public rights-of-way to minimize the intensity of the proposed arena facility. Additionally, all surface parking areas should be landscaped with a minimum of one 15 gallon tree for every six parking spaces (these trees would be in addition to the street trees). Landscaping plans should be approved prior to the implementation of the proposed project. **(Non-Significant if Implemented in Project)**	1. **Impact:** The proposed arena facility would alter the project site from its current urbanized character with the introduction of a single structure in mass and scale that is approximately 35 percent greater in size than the existing development. **(Significant)** **Mitigation (Not Presently Included in Project):** Further evaluation of the site design impacts should be conducted prior to the architectural review process utilized by the City of San Jose. Proposed landscaping, exterior building materials and compatibility with adjacent uses should be considered in this review. Street trees should be planted along all public rights-of-way to minimize the intensity of the proposed facility. Additionally, to minimize the visual impact of surface parking areas, all surface parking areas should landscaped with a minimum of one 15 gallon tree for every six parking spaces (these trees would be in addition to the required street trees). Landscaping plans should be approved prior to implementation of the proposed project. **(Non-Significant if Mitigation is Implemented)**	1. **Impact:** The proposed arena facility would be a structure in mass and height that would significantly alter the existing vacant site. **(Significant)** **Mitigation: (Not Presently Included in Project)** Further evaluation of the site design impacts should be conducted prior to the architectural review process utilized by the City of San Jose. Proposed landscaping, exterior building materials and compatibility with adjacent uses should be considered in the review. Street trees should be planted along all public rights-of-way to minimize the intensity of the proposed facility. Additionally, all surface parking areas should be landscaped with a minimum of one 15 gallon tree for every six parking spaces (these trees would be in addition to the street trees). Landscaping plans should be approved prior to project implementation. **(Non-Significant if Mitigation is Implemented)**

AESTHETIC RESOURCES

SITE A

2. **Impact:** Implementation of the proposed arena facility project would have a significant impact on the immediate neighborhood in terms of size, scale and intensity. **(Significant and Unavoidable)**

   Mitigation (Included in Project): Careful siting of the proposed arena facility, including setbacks and building orientation, would be included to reduce the visual impacts of the arena facility. **(Significant and Unavoidable)**

3. **Impact:** The use of glass and other exterior materials have the potential to generate glare. **(Significant)**

   Mitigation (Not Presently Included in Project): The proposed arena facility should minimize glare and intrusion on adjacent properties by utilizing non-glare glass and requiring lighting standards in the parking areas to be directed onto the project site. A method should be utilized to automatically shut off lights after arena events are over, leaving only security lighting on beyond that time. **(Non-Significant if Mitigation is Implemented)**

4. **Impact:** The proposed arena facility would add a new and different visual element to the project site. **(Significant)**

   Mitigation (Included in Project): Careful siting, including setbacks and orientations with architectural treatments would reduce the visual impacts of the proposed arena facility. **(Non-Significant)**

SITE B

2. **Impact:** The use of glass and other exterior materials have the potential to generate glare. This could adversely impact adjacent land uses and incoming aircraft to San Jose International Airport. **(Significant)**

   Mitigation (Not Presently Included in Project): The proposed arena facility minimize glare and intrusion on adjacent properties by utilizing non-glare glass and requiring lighting standards in the parking areas to be directed onto the project site. A method should be utilized to automatically shut off lights after arena events are over, leaving only sucurity lighting on beyond that time. **(Non-Significant if Mitigation is Implemented)**

3. **Impact:** The proposed arena facility would add a new and different visual element to the project area. **(Significant)**

   Mitigation (Included in Project): Careful siting, including setbacks and orientations with architectural treatments of the facility would reduce the visual impacts of the proposed arena facility. **(Non-Significant)**

SITE C

2. **Impact:** The use of glass and other exterior materials have the potential to generate glare, thereby impacting adjoining land uses. **(Significant)**

   Mitigation (Not Presently Included in the Project): The proposed arena facility should minimize glare and intrusion on adjacent properties by utilizing non-glare glass and requiring lighting standards in the parking areas to be directed downward onto the project site. A method should be utilized to automatically shut off light after arena events are over, leaving only security lighting on beyond that time. **(Non-Significant if Mitigation is Implemented)**

3. **Impact:** The proposed arena facility would add a new and different visual element to the project area. **(Significant)**

   Mitigation: (Included in Project): Careful siting, including setbacks and orientations with architectural treatments of the facility would reduce visual impacts of the proposed arena facility. **(Non-Significant)**

ENERGY CONSUMPTION

SITE A

1. **Impact:** Construction of an arena facility on the project site would increase energy usage by approximately six times over what is currently being used on the site. **(Non-Significant)**

   Mitigation (Not Presently Included in Project): The City of San Jose should require that energy-related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed facility. Additionally, the use of a hockey rink would add on the order of 1,000,000 kilowatt-hours per year to the electrical consumption. Deletion of the hockey rink would reduce the projected annual electical use by approximately 20 percent. **(Non-Significant)**

SITE B

1. **Impact:** Construction of an arena facility on the project site would increase energy usage by approximately 4.7 times over what is currently being used within the project boundaries. **(Non-Significant)**

   Mitigation (Not Presently Included in Project): The City of San Jose should require that energy-related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed arena facility. Additionally, the use of a hockey rink would add on approximately 1,000,000 kilowatt-hours per year to the electrical consumption of the arena facility. Deletion of the hockey rink would reduce the projected annual electrical use by approximately 20 percent. **(Non-Significant)**

SITE C

1. **Impact:** Construction of an arena facility on the project site would increase energy usage on the site over existing levels. There is currently no energy being utilized on the site (the site is currently fallow agricultural land). **(Non-Significant)**

   Mitigation (Not Presently Included in Project): The City of San Jose should require that energy related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed facility. Additionally, the use of a hockey rink would add on the order of 1,000,000 kilowatt-hours per year to the electrical consumption. Deletion of the hockey rink would reduce the annual electrical use by approximately 20 percent. **(Non-Significant)**

	SITE A	SITE B	SITE C
HISTORIC RESOURCES	3. **Impact:** Due to the present impacted condition of the Interior Plant Design Structure, the proposed removal of this building would result in a moderate impact. **(Non-Significant)** **Mitigation (Included in Project):** Conduct an archival/oral historic research and photographic documentation of the structure prior to removal. **(Non-Significant)** 4. **Impact:** Removal of the residence at 75 North Autumn Street would result in a significant impact to this historic resource. **(Significant and Unavoidable)** **Mitigation (Not Presently Included in Project):** As a result of the structure's location near the edge of the project site, project redesign (to avoid the structure) would be the optimum mitigation alternative. Other mitigation options would include relocation of the structure to a site in the immediate neighborhood or in another historic neighborhood or compatible site. **(Non-Significant if Mitigation is Implemented)** **Mitigation (Included in Project):** In the event of demolition, conduct an extensive archival/oral history research and photographic documentation of the structure prior to removal. **(Significant and Unavoidable)** 5. **Impact:** The removal of the residence at 97 North Autumn Street would result in a significant impact to this historic resource. **(Significant and Unavoidable)** **Mitigation (Not Presently Included in Project):** As a result of the structure's location near the edge of the project site, project redesign would be the optimum mitigation. Other mitigative options include relocation of the structure to a site in the immdeiate neighborhood or in another historic neighborhood or compatible site. **(Non-Significant if Mitigation is Implemented)** **Mitigation (Included in Project):** In the event of demolition, conduct an extensive archival/oral history research and photographic documentation of the site. **(Significant and Unavoidable)**	2. **Impact:** Implementation of the proposed project would necessitate the removal of the 1920 extension to the original FMC building. This would create a sigificant impact to the structure. **(Significant)** **Mitigation (Included in Project):** Since the archival background on the structures is extensive, no additional research is recommended. Accordingly, mitigation recommended for the loss of this structure is photographic documentation and the nomination of the site as a San Jose Historic Landmark Site. This would include the erection of a landmark plaque. **(Non-Significant if Mitigation is Implemented)**	

	SITE A	SITE B	SITE C
HISTORIC RESOURCES	6. **Impact:** The removal of the residence at 99 North Autumn Street would result in a significant impact to this historic resource. **(Significant and Unavoidable)** **Mitigation (Not Presently Included in Project):** As a result of the structure's location near the edge of the project site, project redesign would be the optimum mitigation alternative. Other mitigative options include relocation of the structure to a site in the immediate neighborhood or to another historic neighborhood or compatible site. **(Non-Significant if Mitigation is Implemented)** **Mitigation (Included in Project):** In the event of demolition, an extensive archival/oral history research and photgraphic documentation should be conducted. **(Significant and Unavoidable)**		
HAZARDOUS MATERIALS	1. **Impact:** Construction of the proposed arena facility may increase the level of acute exposure from existing hazards within the project boundaries. **(Non-Significant)** **Mitigation (Included in Project):** Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. A site-specific plan for clean-up activities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Non-Significant)**	1. **Impact:** Construction of the proposed arena facility may increase the level of acute exposure from existing hazards within the project boundaries. **(Significant)** **Mitigation (Included in Project):** Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. A site-specific plan for clean-up acitivities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Non-Significant)**	1. **Impact:** Construction of the proposed arena facility would likely increase the level of acute exposure from existing hazards within and adjacent to the project boundaries. **(Significant)** **Mitigation: (Included in Project):** Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. A site-specific plan for clean-up activities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Non-Significant)**
URBAN ECONOMICS	1. **Impact:** The construction and operation of an arena facility would have minimal impact on the existing commercial businesses. Additionally, it is unlikely that the demand generated by the arena patrons would be sufficient to create additional development. **(Non-Significant)** **Mitigation:** None required.	1. **Impact:** The construction and operation of an arena facility would have a minimal impact on existing commercial businesses. Additionally, it is unlikely that the demand generated by arena patrons, visiting teams or performers would be sufficient to cause additional commercial development. **(Non-Significant)** **Mitigation:** None required.	1. **Impact:** The construction and operation of an arena facility would have a minimal impact on existing commercial businesses. Additionally, it is unlikely that the demand generated by arena patrons, visiting teams or performers would be sufficient to cause additional commercial development. **(Non-Significant)** **Mitigation:** None required.

	SITE A	SITE B	SITE C
RESIDENTIAL AND BUSINESS RELOCATION	1. **Impact:** Implementation of the proposed arena facility project would dislocate the two residences currently located within the project site. **(Non-Significant)** **Mitigation (Included in Project):** The Redevelopment Agency of San Jose should prepare a relocation plan in accordance with all applicable Government Codes. The residential requirements of each homeowner and/or tenant will be evaluated on a case-by-case basis to ensure the implementation of the best feasible methods of Relocation Assistance. **(Non-Significant)** 2. **Impact:** Displacement of the existing businesses within the project site wuld create a significant impact. While some of the businesses would relocate, not all of the businesses would find it financially feasible to relocate and may cease operations. These alternatives could, for an indeterminate time period, incrementally increase the unemployment levels of the City, County and reigion. **(Significant and Unavoidable)** **Mitigation (Included in Project):** The Redevelopment Agency of San Jose should administer the Relocation Assistance Programs available to displaced businesses within the project boundaries. Despite the implementation of mitigation measures which could reduce the anticipated impacts, the impact of the project on existing businesses would be a significant and unavoidable impact. **(Significant and Unavoidable)**	1. **Impact:** Implementation of the proposed project would dislocate the three residences located within the project site. **(Non-Significant)** **Mitigation (Included in Project):** The Redevelopment Agency of San Jose should prepare a relocation plan in accordance with all applicable Government codes. The residential requirements of each homeowner and/or tenant will be evaluated on a case-by-case basis to ensure the implementation of the best feasible methods of Relocation Assistance. **(Non-Significant)** 2. **Impact:** Displacement of the existing businesses within the project site would create a significant impact. While some of the businesses would relocate, not all of the existing businesses would find it financially feasible to relocate and may cease operations. These alternatives could, for an indeterminate time period, incrementally increase the unemployment levels of the City, County and region. **(Significant and Unavoidable)** **Mitigation (Included in Project):** The Redevelopment Agency of San Jose should administer the Relocation Assistance Programs available to displaced businesses within the project site. Despite the implementation of mitigation measures which could reduce the project impact, the impact of the project on existing businesses is a significant and unavoidable impact. **(Significant and Unavoidable)**	
CHLORINE ASSESSMENT			1. **Impact:** Under adverse conditions, the potential exists that a chlorine release from the Water Pollution Control Plant (resulting from a major spill) could threaten the health of the public at the proposed project site. **(Significant)** **Mitigation (Not Included in Project):** An early-warning system could be incorporated in the arena design to initiate timely evacuation of the arena facility in response to an alert from the WPCP. Scheduling of events could be limited to times of day and periods of the year when climatic conditions are conducive to atmospheric dispersion. **(Non-Significant if Mitigation is Implemented)**

	SITE A	SITE B	SITE C
AIRCRAFT SAFETY	1. **Impact:** The proposed height of the arena facility is in conformance with the guidelines established by the FAA and the ALUC for Santa Clara County. However, lighting on the proposed structure may interfere with aircraft preparing for final approach to San Jose International Airport. **(Significant)** **Mitigation (Not Presently Included in Project):** Structural and parking area lighting should be directed so as not to interfere with the visibility of aircraft preparing for final approach to the San Jose International Airport. **(Non-Significant if Mitigation is Implemented)** 2. **Impact:** The project site is not located in an area that has been identified by the Santa Clara County Airport Land Use Commission as being an accident potential area. **(Non-Significant)** **Mitigation (Included in Project):** Any proposed development on the project site would bve subject to evaluation by the FAA, subsequent to the filing of the Notice of Proposed Construction or Alteration. **(Non-Significant)**	1. **Impact:** The project site is not located in an area that has been identified by the Santa Clara County Airport Land Use Commission as being an accident potential area. **(Non-Significant)** **Mitigation (Included In Project):** Any proposed development on the project site would be subject to evaluation by the FAA, subsequent to the filing of the Notice of Proposed Construction or Alteration. **(Non-Significant)** 2. **Impact:** The proposed height of the arena facility is in conformance with the guidelines established by the FAA and the ALUC for Santa Clara County. However, lighting on the proposed arena facility could adversely impact incoming aircraft to San Jose International Airport. **(Significant)** **Mitigation (Not Presently Included in Project):** Structural lighting is recommended to improve the visibility of the proposed project, particularly if the structure approaches or exceeds the FAA/City of San Jose height limit for this site (this is not anticipated to be an impact). **(Non-Significant if Mitigation is Implemented)**	

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PART ONE

SAN JOSE ARENA FACILITY EIR

PROJECT DESCRIPTION

AUGUST 1987

PART ONE

SECTION I.

PROJECT DESCRIPTION

A. OVERVIEW OF THE PROPOSED PROJECT

The proposed project is the development of a 20,000 seat arena facility on one of three possible sites that are evaluated in this environmental document. This arena facility is being proposed and sponsored by the City of San Jose. The proposed arena facility represents the culmination of a series of studies and analyses prepared for the development of the proposed facility.

In December, 1986, The Redevelopment Agency of the City of San Jose Agency approved an Arena Project workplan that directed the Redevelopment Administration to proceed with the initial steps necessary for the development of a community arena facility in the City of San Jose. The goal of the first phase of the workplan was to assess current market conditions and design an arena program that would meet the needs of the market. Another important element of the first phase was to identify and evaluate several locations to determine the feasibility of each site and the potential impacts to the surrounding areas. From this initial evaluation, three locations were identified as potential sites for the proposed arena facility. These three site are: Site A-- the area located north of Santa Clara Street between Los Gatos Creek and the Southern Pacific Railroad right-of-way; Site B-- the area north of Julian Street between State Route 87 and the Guadalupe River; and, Site C-- the area located at the southeast corner of State Route 237 and Zanker Road.

Other potential sites were considered in the preliminary evaluations for this project. However, these other sites were eliminated for various reasons, including accessibility of the properties, environmental constraints and feasibility of implementation.

An arena program addressing the specific needs for a San Jose facility was developed by the architectural firm of Sink-Combs-Dethlefs. The program concluded that to be successful in attracting patronage, a community arena must be capable of accommodating a variety of different events, ranging from ice hockey and basketball to concerts and tractor pulls.

The capacity of the arena was determined by a survey of current market conditions and preferences of professional sports organizations. It was determined that the design of the proposed arena facility should not exclude any possible professional team use. The National Hockey League requires 16,000 seats surrounding the ice floor. This configuration would also accommodate 17,500 seats for a basketball audience, which is well above the current average of 16,242 for NBA facilities. Additionally, it was determined that the facility should be able to accommodate approximately 19,000 spectators for events such as concerts or boxing matches. Lastly, it was determined that an ultimate capacity of 20,000 spectators could be accommodated through the use of a "sky-box" design or some other supplementary arrangement (Redevelopment Agency of San Jose, 1987).

The proposed arena facility, as analyzed in this document, assumes a building approximately 350 feet wide by 460 feet long. The height of the roof (above the existing grade) would be approximately 65 feet, assuming the arena floor is

depressed 15 feet below grade. The apparent bulk of the structure can also be reduced through the building's design. Landscaping, lighting, street furniture and graphics would be designed and/or selected to achieve a totally-integrated effect (Sink-Combs-Dethlefs, 1987).

B. PROJECT LOCATIONS, BOUNDARIES AND SITE CHARACTERISTICS

The three sites being evaluated for the proposed 20,000 seat San Jose Arena facility are located in the City of San Jose, Santa Clara County, as shown on Figures 1 through 5. The three sites were designated Sites A, B and C, and the following is a description of the project areas.

1. Site A

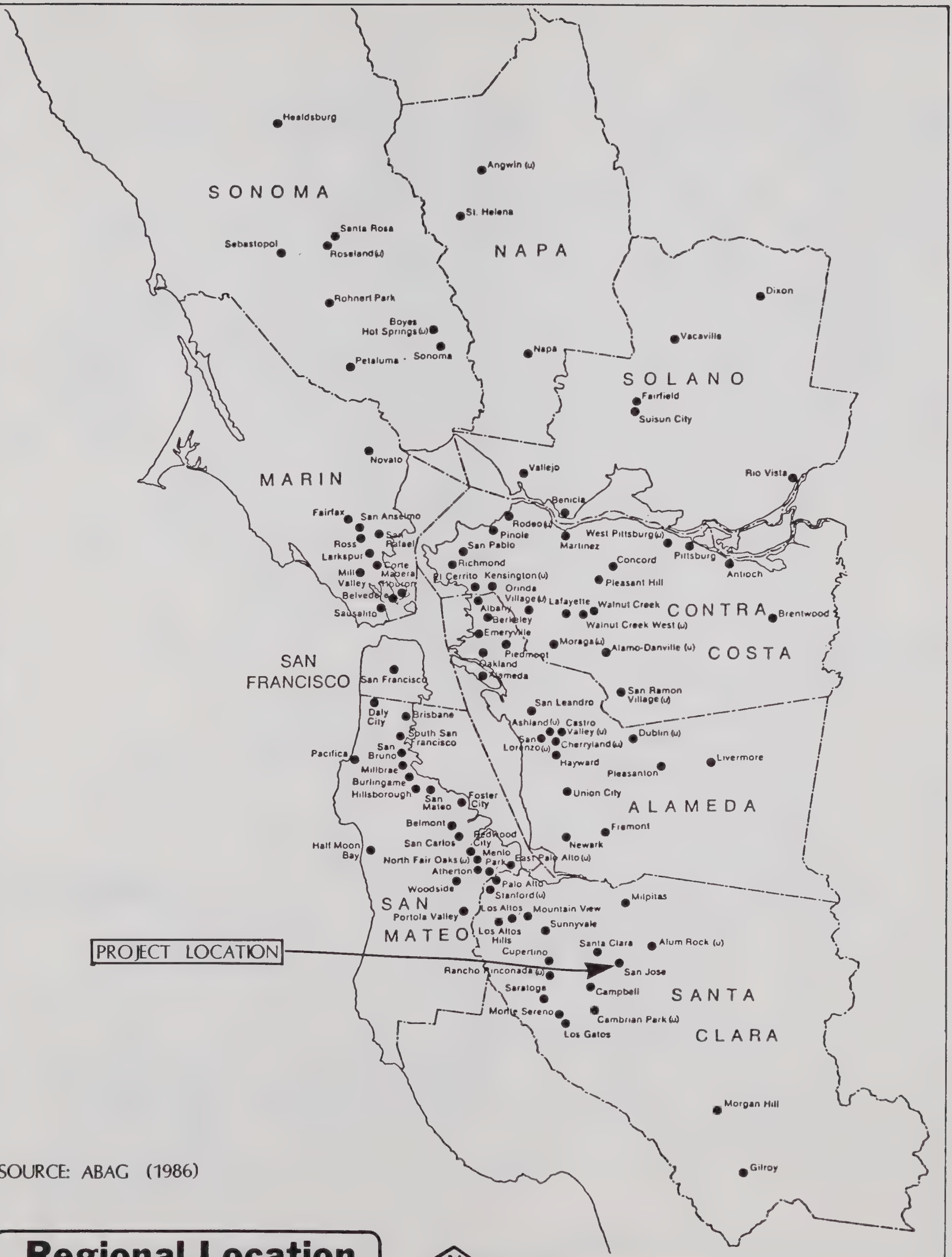
Site A, encompassing approximately 18 acres, is located on the northerly side of West Santa Clara Street between Southern Pacific Railroad right-of-way and the confluence of Los Gatos Creek and the Guadalupe River (see Figures 2 and 3).

Two site development alternatives are proposed for Site A. Site Alternative A-1, consisting of approximately 18 acres of land, is located on the northerly side of West Santa Clara Street between the Southern Pacific Railroad right-of-way and the confluence of Los Gatos Creek and Guadalupe River (refer to Figure 6). The irregular-shaped parcel has portions of it boundary composed of Saint John Street on the north, Santa Clara Street on the south, Los Gatos Creek and the Guadalupe River on the east and the Southern Pacific Railroad right-of-way to the west (Sink-Combs-Dethlefs, 1987).

Alternative A-1 would provide 2,020 on-site parking spaces. Of that total, 1,370 spaces would be located in a parking structure. This parking structure would be located immediately to the north of the proposed arena facility. The balance of the parking would be provided in surface lots. Parking would also be provided for approximately 20 service vehicles and trucks in the staging area west of the proposed arena facility. Parking attendant booths would be located at each parking area entrance (Sink-Combs-Dethlefs, 1987).

Upon the implementation of the Master Plan for the Guadalupe River Park, Site A-1 would relinquish the surface parking area on the easterly side of North Autumn Street. To make up for this loss of 575 parking spaces, this alternative would involve an addition to the original Alternative A-1: a) either the property between Alternative A-1's northerly boundary and West Julian Street (consisting of approximately 3.5 acres which can be added for surface parking); or b) the construction of a parking structure on the southerly side of West Santa Clara Street between Cahill, Crandall and Montgomery Streets. The selection of either of these options may require additional environmental review, if implemented (Sink-Combs-Dethlefs, 1987).

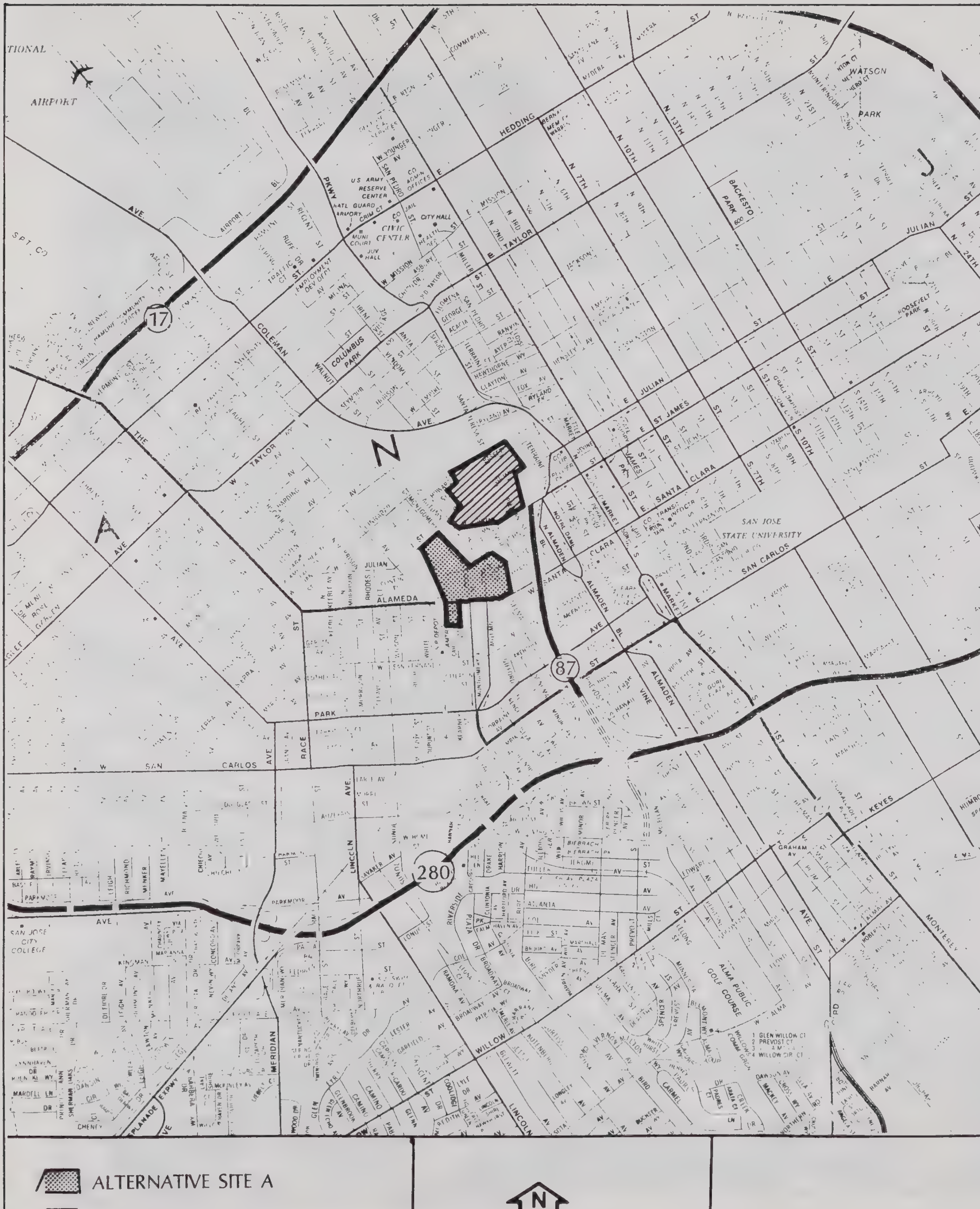
Upon implementation, the Master Plan for the Guadalupe River Park would provide significant amenities for the arena environment. Autumn Street would become Riverfront Road and would become a primary access to the project site. Santa Clara Street would also serve as a primary access route for both vehicles and pedestrians. Vehicles can arrive via Interstates 280 and 880, U.S.



SOURCE: ABAG (1986)

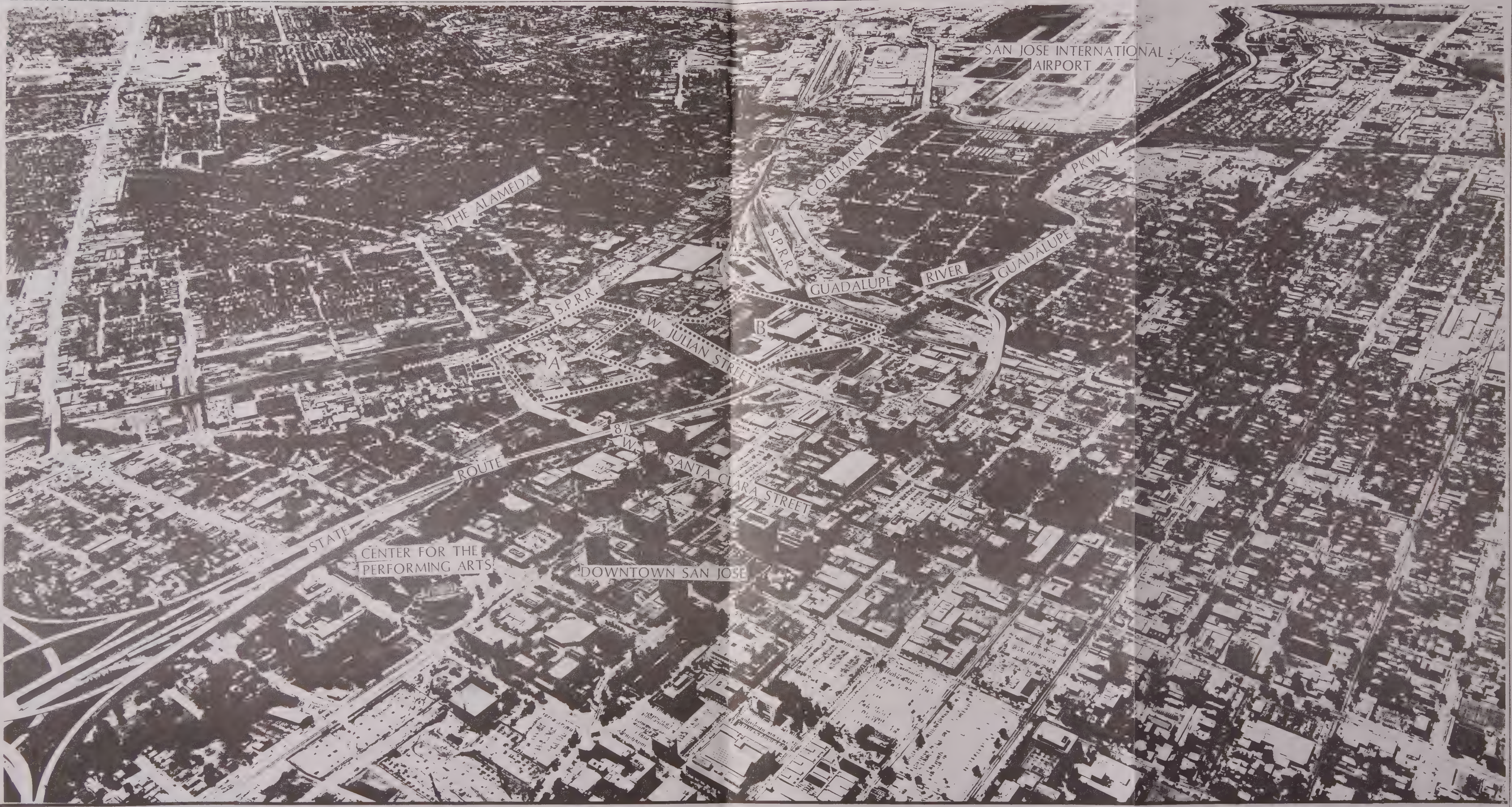
Regional Location

FIGURE 1



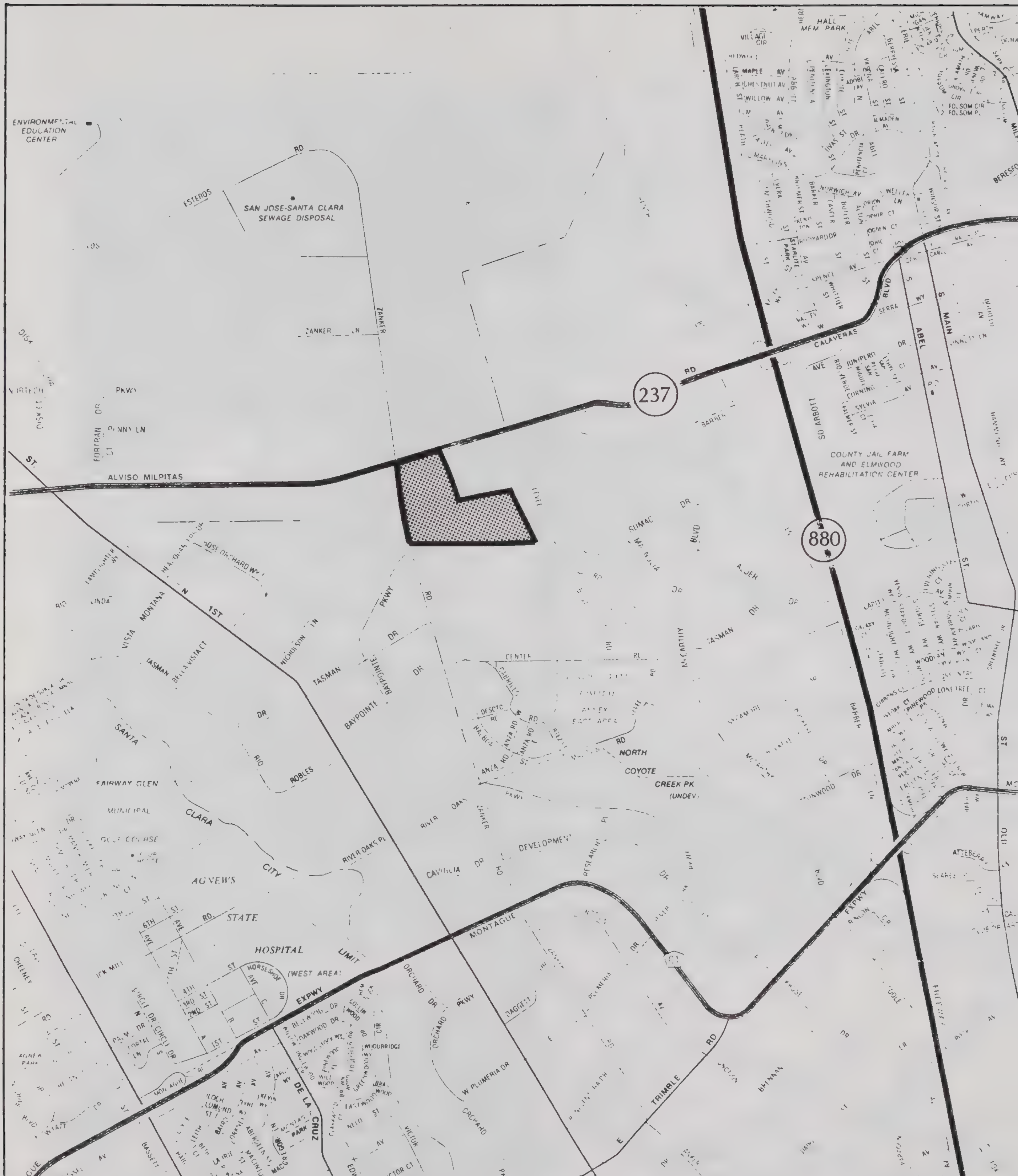
Location Map

FIGURE 2



AERIAL PHOTOGRAPH OF ALTERNATIVE SITES A AND B AND SURROUNDING VICINITY

FIGURE 3

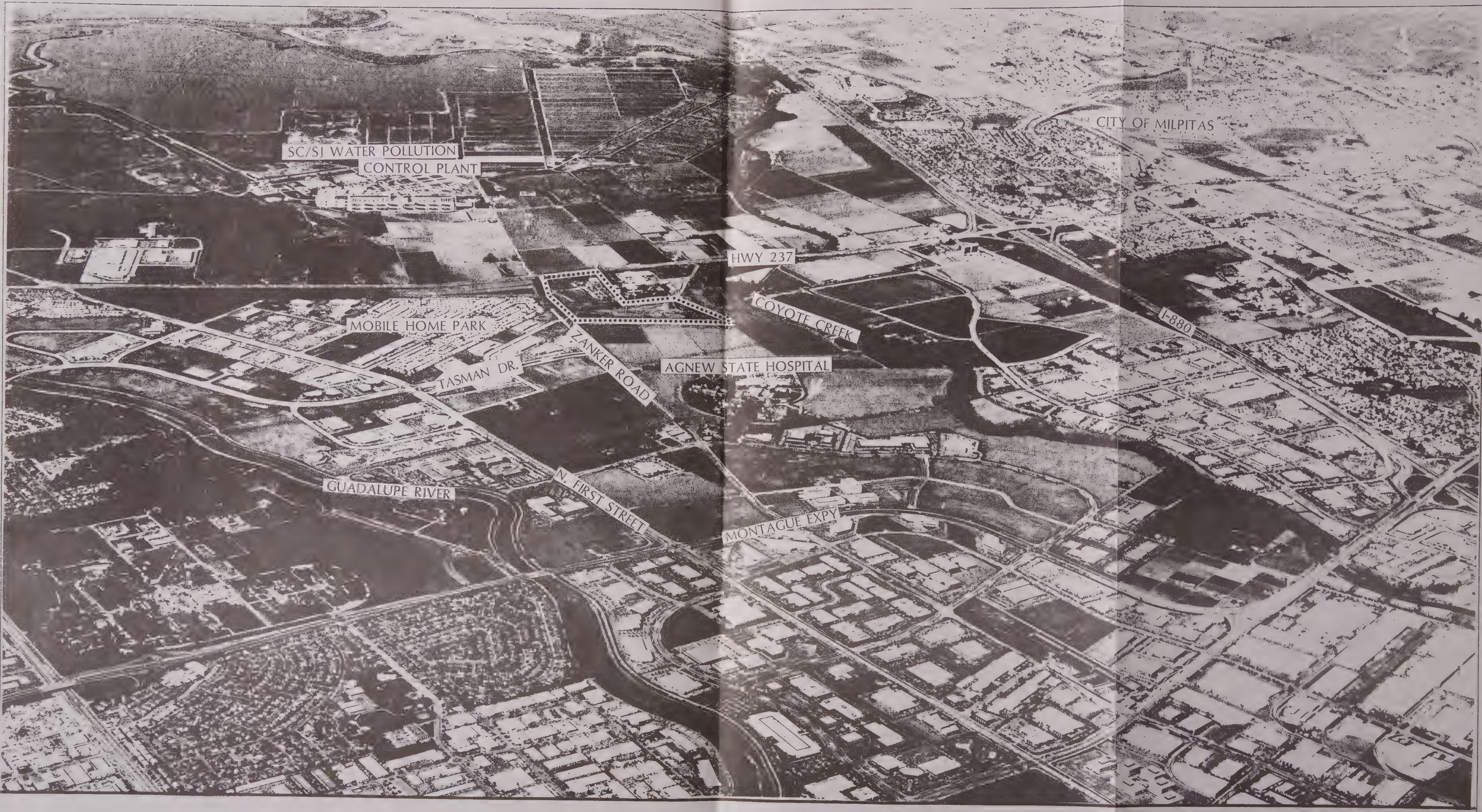


ALTERNATIVE SITE C

0 2500 Feet

Location Map

FIGURE 4



AERIAL PHOTOGRAPH OF ALTERNATIVE SITE C AND SURROUNDING VICINITY

FIGURE 5

SOURCE: SINK COMBS DETHLEFS (1987)

SITE PLAN FOR ALTERNATIVE SITE A-1 (SHEMATIC)	N 0 250 500 Feet	FIGURE 6

Highway 101 or State Route 87. Additionally, City roadways such as Santa Clara Street/The Alameda and Montgomery Street would provide direct access to the project site. Pedestrian access to the project site from the central business district would be via Santa Clara Street. Spectators could also arrive via CalTrain and the future light rail system (Sink-Combs-Dethlefs, 1987).

Site Alternative A-2 is the same size and shape as Alternative A-1, except that Alternative A-2 includes the block on the southerly side of West Santa Clara Street bounded by Cahill, Crandall and Montgomery Streets (refer to Figure 7). As in the case of Alternative A-1, Alternative A-2 would lose its parking area on the easterly side of Autumn Street when the Guadalupe River Park Master Plan is implemented. This loss would be compensated by adding structured parking north of the proposed arena facility between its westerly boundary and Montgomery Street (Sink-Combs-Dethlefs, 1987).

Alternative A-2 includes a multiple-level parking structure on the south side of West Santa Clara Street. This parking structure would accommodate 835 vehicles (refer to Figure 7). This parking structure could also be connected to the proposed arena facility at the concourse level by bridging over West Santa Clara Street. Pedestrians utilizing the parking structure could then access the arena facility without interrupting the flow of traffic along West Santa Clara Street. The balance of the 2,020 parking spaces would be provided on surface lots. A parking structure in this location would be available for use by daytime commuters utilizing CalTrain and other commuter facilities located at the multimodal Cahill Station (Sink-Combs-Dethlefs, 1987).

Existing Land Uses-- Site A

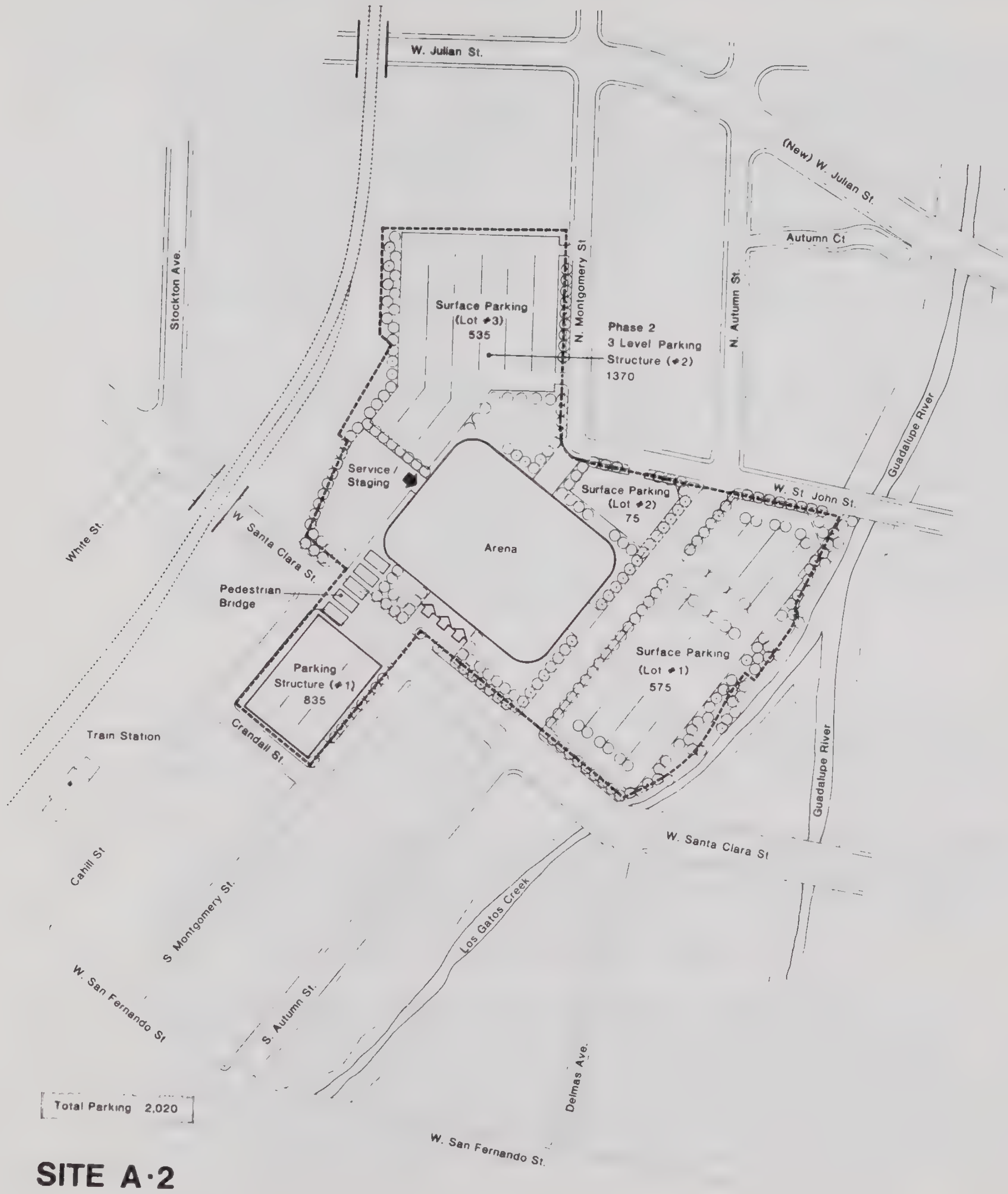
The existing land uses in the vicinity of Site A are light manufacturing, automobile dealerships, automotive-related small businesses and a Pacific Gas and Electric service facility. Within the specific project site, there are approximately 20 to 30 existing businesses and two residences. The easterly portion of the project site (east of Autumn Street) is slated for ultimate aquisition as part of the Guadalupe Park Master Plan. It is envisioned that the majority of this area would be used for interim surface parking when the arena opens in 1991 (City of San Jose, 1987).

To the south of the project site (across Santa Clara Street) is the Cahill Train Station which is designated as San Jose's Multimodal Transportation Terminal. Design work is currently underway for a series of improvements intended to enhance the use of the peninsula train service (Caltrain), including:

- upgrading and restoration of the terminal building;
- new trackage to expand the existing rail service;
- development of an 880 car parking area; and
- extension of an LRT shuttle loop from the downtown area.

2. Site B

Site B encompasses approximately 15 acres of land and is located on the north side of New Julian Street west of State Route 87 and south of the Southern Pacific railroad right of way as shown on Figure 8. The Guadalupe River traverses the westerly sector of Site B with two irregularly shaped parcels of the site located to the west of the river channel. One of these parcels is bounded by



SOURCE: SINK COMBS DETHLEFS (1987)

SITE PLAN FOR ALTERNATIVE SITE A-2 (SCHEMATIC)

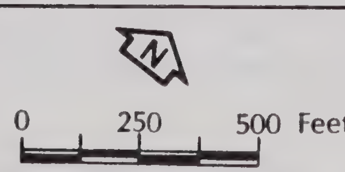


FIGURE 7

Julian, Autumn, Old Julian Streets and the Guadalupe River. The other parcel stretches from Old Julian to the old Howard Streets alignment including about one third of the area between North Autumn Street and the Guadalupe River (Sink-Combs-Dethlefs, 1987).

Vehicular access to the project site would be via the Guadalupe Freeway (State Route 87) to Julian Street. It is also anticipated that site access would be made via a new connection to Bassett Street. Parking would be provided on the site for 2,025 vehicles. These parking spaces would be provided in a parking structure which would be located north of the proposed arena facility. Access to the parking structure would be from Howard Street via a ramp and a bridge spanning the Guadalupe River and connecting to one of the upper levels of the parking structure. As in Site A, parking booths would be at each entrance to the parking areas. Parking for approximately 20 service trucks and vehicles would be provided in the staging and service area (Sink-Combs-Dethlefs, 1987).

Pedestrian access from the central business district would be via Julian Street. Access is anticipated along the Guadalupe River Park after the Guadalupe River Park after Master Plan is implemented. Two-thirds of the patrons of the proposed arena facility would park off-site (i.e., in the downtown parking garages) and arrive at the arena on foot for sell-out events. An existing pedestrian bridge (Old Julian Street bridge) is shown to serve such a load from the west leading to two plazas surrounding the main entrance of the arena facility. The plaza on the southerly side of the arena facility would be accessible from Julian Street (Sink-Combs-Dethlefs, 1987).

Existing Land Uses-- Site B

The project site is currently used almost exclusively for business purposes, with the primary activity being the storage of a wide range of materials. Currently, there are two residential structures on the project site (City of San Jose, 1987).

As stated in the Guadalupe River Park Master Plan, the most westerly 100 feet of this project site would ultimately be developed as parkland adjacent to the river. All flood control improvements and any necessary widening of the Guadalupe River would occur on the westerly bank and would therefore not decrease the overall size of Site B (City of San Jose, 1987).

Site B is adjacent to the proposed State Route 87/Julian Street interchange, which will ultimately provide direct access to the project site from U.S. Highway 101 and Interstate 280. However, this immediate proximity, while creating excellent visibility of the project site from adjacent roadways, requires the construction of additional off-site improvements in order to provide adequate access to the site while at the same time preventing the stacking of vehicles on the freeway off-ramp.

3. Site C

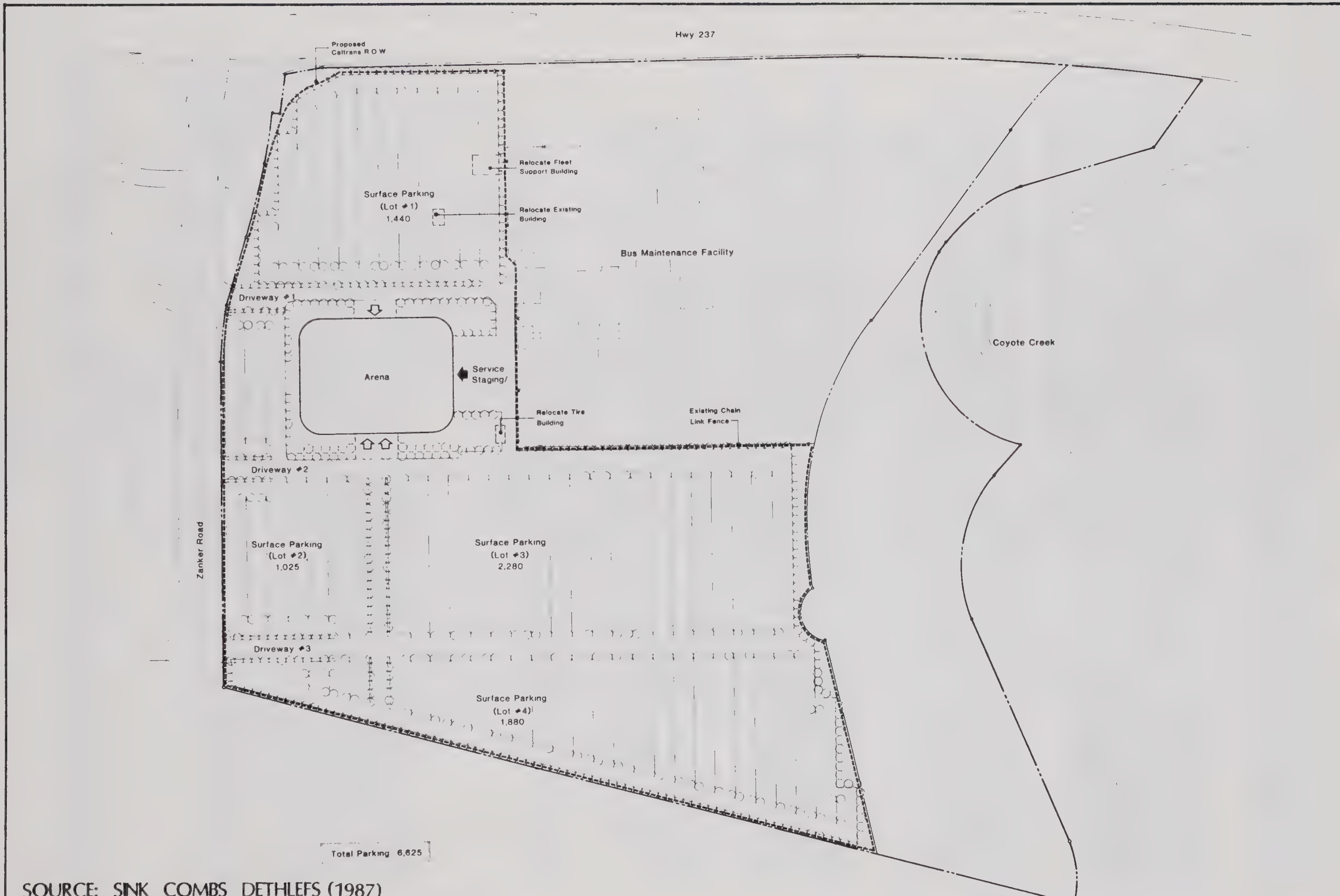
Site C, encompassing approximately 60-acres, is located on the southeast corner of State Route 237 and Zanker Road (refer to Figure 9). This site is part of a larger 123 acre parcel that is currently owned by the Santa Clara County Transit District. Of this 123 acres, approximately 32 acres are in the Coyote River floodplain which is scheduled to be developed as an overflow flood control channel to alleviate flooding in the North San Jose area. Additionally, approximately 30 acres in the northeast corner of the project site is currently

SOURCE: SINK COMBS DETHLEFS (1987)

(SCHEMATIC)
SITE PLAN FOR ALTERNATIVE SITE B

0 250 500 Feet N

FIGURE 8



SOURCE: SINK COMBS DETHLEFS (1987)

(SCHEMATIC)
SITE PLAN FOR ALTERNATIVE SITE C

FIGURE 9

developed as a County bus yard. As can be seen in Figure 9, a small portion of the northwest corner of the project area would be required to accommodate the future State Route 237/Zanker Road interchange when the arena opens in 1991 (City of San Jose, 1987).

Vehicular access to Site C area would be via State Route 237, Interstates 680 and 880 and U.S. Highway 101. Local access would be via Zanker Road, North First Street and the Montague Expressway. Parking would be provided on the project site for 6,400 vehicles. These spaces would be accommodated on four surface lots. Parking for approximately 25 service vehicles would be provided in the staging and service area. Attendant booths would be at the entrance of each parking area (Sink-Combs-Dethlefs, 1987).

There would be minimal pedestrian access to the Site C, unless a significant extension of the lightrail system is constructed. However, shuttle or bus service would be a viable alternative from the Tasman Terminal on North First Street, which is a distance of approximately 1.5-miles from Site C. Pedestrian routes within the site would follow the landscaping patterns (Sink-Combs-Dethlefs, 1987).

Development of the proposed arena facility at Site C would require some adjustment to the existing Santa Clara County Transit facility. These adjustments would be necessary to accommodate the proposed arena space requirements. Three small buildings would have to be relocated as well as the employee parking area, all of which are located easterly of the arena site property line shown in Figure 9 (Sink-Combs-Dethlefs, 1987).

Site C would accommodate an arena similar to the descriptions for Sites A and B, except that its apparent height above finished-grade could be reduced to approximately 50 feet through the use of berms. This berm design would also permit exiting directly from the concourse level (Sink-Combs-Dethlefs, 1987).

Existing Land Uses-- Site C

Except for the three existing buildings mentioned above, Site C is undeveloped and sitting idle as fallow agricultural land.

C. PROJECT CHARACTERISTICS

The anticipated mix of arena events considered in this EIR assumes two possible scenarios: an arena facility with and without a National Basketball Association (NBA) franchise. Event days for the arena without an NBA franchise are projected as 120 annually (33-percent of these are expected to be sports-related). The number of annual event days with an NBA franchise are projected to be 155 (53-percent of these events are projected to be sports-related). The mixture of events differs with the addition of an NBA franchise. Other possible categories of activities include family show performances, concerts and miscellaneous conventions and special events. It is anticipated that it would take four years for the arena facility to reach stabilized operations. Characteristics of the different types of events and their possible patrons are discussed below (Economic Research Associates, 1987).

Sporting Events

The proposed arena facility would be capable of accommodating the following sporting events: basketball, ice hockey, indoor soccer, tennis, boxing, wrestling and

gymnastics. The NBA season runs from late October through April with 41 home games. Without the NBA franchise, a total of 40 sporting events are projected. This number would increase to 81 with a franchise.

Family Show Performances

It is anticipated that the proposed arena facility would attract the following family-oriented shows: the circus, ice shows, exhibition shows such as the Harlem Globetrotters, dirt floor events (i.e., rodeos and tractor pulls) and other motor sports events. Approximately 40 family show performances could be expected annually, regardless of whether or not an NBA franchise operates out of the arena.

Concerts

The arena would accommodate rock concerts as well as individual performers. Concert events are projected for 25 days annually without the NBA franchise, and 20 days with the basketball home team.

Miscellaneous Events

Other events which might utilize the proposed arena facilities include religious meetings, conventions, celebrations, civic and community events. These are projected at 14 event days annually.

Flat events (i.e., trade and consumer shows), which are open for attendance throughout the day, are not projected for the proposed arena facility. This is because competing facilities, such as the San Jose and Santa Clara Convention Centers, are expected to attract the major portion of these activities.

D. PROJECT OBJECTIVES

The principal objective of this project is the development of an arena facility and its auxiliary uses in San Jose. It is intended that this arena facility would serve the greater San Jose area with a variety of cultural and entertainment events.

E. PROJECT ACTIONS- USES OF THE EIR

The information contained in this EIR provides decision-makers and members of the public with a detailed description of the proposed project and informs them of any potentially-significant environmental impacts which may occur with the implementation of the proposed arena facility. This EIR will be used by some or all of the following public agencies in their role(s) as decision-makers in various aspects of the project approval process: City of San Jose, San Jose Redevelopment Agency, County of Santa Clara, Santa Clara County Transportation District, Caltrans, Department of Fish and Game Streambed Alteration Permit (Sections 1601 to 1606 of the California Fish and Game Code), the U.S. Army Corps of Engineers (Section 404 of the Clean Water Act), Santa Clara County Airport Land Use Commission and the Santa Clara Valley Water District.

1. Overview of the Environmental Review Process

Many of the actions and approvals to be taken by the City of San Jose on the proposed San Jose Arena facility are known as "discretionary actions" as defined

under the guidelines of the California Environmental Quality Act (CEQA). A discretionary action is "the exercise of judgement or deliberation when the public agency or body decides to approve or disapprove a particular activity..." (Section 15357 of the CEQA Guidelines, as amended). Discretionary actions require that some level of environmental review occur before the action is taken.

The decision to pursue developing an arena facility within the City of San Jose was the reason for preparing this Environmental Impact Report (EIR). The selection of an arena site is a project decision for which this EIR will be used.

In case of the San Jose Arena Facility, because of the potentially significant impacts associated with the implementation of the proposed project, an environmental impact report (EIR) has been prepared. This EIR addresses the overall environmental impacts of the proposed project for each of the three sites being considered for the proposed San Jose Arena facility. This EIR provides information in sufficient detail so that decision-makers can vote on the actions and/or approvals being considered.

This environmental document is intended to be used as a "Project EIR." As defined in Section 15161 of the CEQA Guidelines, a Project EIR should, "focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project, including planning, construction and operation." This EIR for the San Jose Arena Facility has analyzed all aspects on the changes in the environment that would result from the implementation of this proposed project, including those created in the planning, construction and operation phases of the proposed project.

Before any actions or approvals on the project itself can be taken by the City of San Jose City Council, the Redevelopment Agency Board or Planning Commission, the Final EIR must be certified as being in compliance with CEQA.

2. Approvals/Actions Needed from the City of San Jose for Implementation of the Proposed San Jose Arena Facility

The following is a summary of the approvals and actions that will be required prior to implementation of the proposed project on the selected site.

Amendment to the City of San Jose General Plan

The City of San Jose's Horizon 2000 General Plan requires Land Use/Transportation Diagram and text amendments to provide full consistency with an arena use at the alternative project sites. Consideration for the three proposed arena sites (Sites A, B and C) would result in eleven amendments. Of these amendments, eight are proposed changes to the Land Use/Transportation Diagram, two are for land use changes for the downtown sites and six are transportation-related amendments for the two downtown arena sites. Additionally, there are two text amendments which will apply to all three of the proposed sites.

The changes to the Land Use/Transportation Diagram and text amendments would be as follows:

Site A

a. GP87-A3-1a: The area generally bounded by West Santa Clara Street, the Southern Pacific Railroad right-of-way, West Julian Street, Montgomery

Street, Saint John Street, the Guadalupe River and Los Gatos Creek (approximately 17 acres).

Land Use/Transportation Diagram changes from Combined Industrial/Commercial designation to Public/Quasi-Public.

b. GP87-A3-1b: Saint John Street between North Montgomery Street to the future Guadalupe River frontage Road (Riverfront Road).

Land Use/Transportation Diagram change to Major collector (60 to 90 feet) designation.

c. GP87-A3-1c: North Montgomery Street between Saint John Street and West Julian Street.

Land Use/Transportation Diagram change to add Minor Arterial (80 to 106 feet) designation.

d. AT-2: Amend the Public/Quasi-Public land use designation and the new Public/Quasi-Public Discretionary Alternate Use Policy for new public/quasi-public uses to permit future or "planned" uses under this designation.

Site B

a. GP87-A3-2a: Area generally bounded by West Julian Street, North Autumn Street, Howard Street, the Southern Pacific Railroad right-of-way and State Route 87 (approximately 15 acres).

Land Use/Transportation Diagram change from Combined Industrial/Commercial designation to Public/Quasi-Public.

b. GP87-A3-2b: North Autumn Street and Howard Street between West Julian Street and the Guadalupe River.

Land Use/Transportation Diagram change to add Major Collector (60 to 90 feet) designation.

c. GP87-A3-2c: Howard Street and the future Guadalupe River frontage road (Riverfront Road).

Land Use/Transportation Diagram change to add a grade separation designation.

d. GP87-A3-2d: Bassett Street between the westerly side of the future State Route 87 and Terraine Street.

Land Use/Transportation Diagram change to add a Major Collector (60 to 90 feet) designation.

e. GP87-A3-2e: Bassett Street between the westerly side of the future State Route 87 and Terraine Street.

Land Use/Transportation Diagram change to add a grade separation designation.

f. AT-2: Amend the Public/Quasi-Public land use designation and the new Public/Quasi-Public Discretionary Alternate Use Policy for new public/quasi-public uses to permit future or "planned" uses under this designation.

Site C

a. AT-1: Amend the High-Rise Policy to allow high-rise public/quasi-public facilities outside of the Downtown Core and the Downtown Frame areas.

b. AT-2: Amend the Public/Quasi-Public land use designation and the new Public/Quasi-Public Discretionary Alternate Use Policy for new public/quasi-public uses to permit future or "planned" uses under this designation.

Consistency With the Julian-Stockton Redevelopment Plan

As of this writing, the City of San Jose is currently in the process of preparing a revision to the original Julian-Stockton Redevelopment Project and preparing an EIR for the Redevelopment Area. The revisions to the original Redevelopment Plan and EIR were deemed necessary to reflect emerging development patterns in the downtown and its environs. The EIR for the proposed San Jose Arena facility will act as an alternative to the Julian-Stockton Redevelopment Plan for the site-specific developments of constructing an arena facility on either Sites A or B. This would be in place of the anticipated full build-out of the Julian-Stockton Redevelopment Area as discussed in the Julian-Stockton Redevelopment Plan.

Vacation of Rights-of-Way

It may be necessary for the City of San Jose to abandon existing rights-of-way or reconfigure existing public roadways in conformance with State law and local ordinances. The precise roadways or segments thereof will be a function of the final approval of the site plan for this project.

Acquisition of Real Property

As a result of the environmental review process for the proposed San Jose Arena facility, certain properties have been identified as being affected by the proposed project. Consequently, the City of San Jose or the San Jose Redevelopment Agency may acquire real properties by purchase, condemnation or any other lawful means.

Relocation of Businesses and Residences

Depending on the preferred site selected for the proposed San Jose Arena facility, certain businesses and residences that are currently located on the project site may need to be relocated. The City of San Jose and/or the Redevelopment Agency of the City of San Jose will provide for the relocation of the occupants (both residential and non-residential) residing in structures or on land that is aquired by the City of San Jose for the implementation of the proposed project in conformance with the Government Code.

Award of Contract for Construction

The City of San Jose will solicit bids for the construction of the arena facility and award the successful bidder(s) a contract to construct the proposed arena facility.

SECTION II.

CONSISTENCY WITH LOCAL AND REGIONAL PLANS

A. THE SAN FRANCISCO BAY AREA ENVIRONMENTAL MANAGEMENT PLAN (ABAG)

This plan was prepared by the Association of Bay Area Governments (ABAG) with the assistance of the Bay Area Air Quality Management District (BAAQMD), the Metropolitan Transportation Commission (MTC), and the San Francisco Bay Regional Water Quality Control Board (RWQCB), under the direction of the Environmental Management Task Force. The plan presents actions to solve regional water quality, water supply, solid waste, and air quality problems to meet State and Federal standards, and designates agencies responsible for carrying out the actions. The majority of the responsible agencies designated in the plan are local, regional, State, and Federal government agencies and legislative bodies. The sections of the plan are summarized below with discussions of policies, if any, that are applicable to the proposed project.

Water Quality

This section includes 12 policies and 40 recommended actions. Policy 8 requires the establishment of a surface runoff control program that emphasizes low cost measures to reduce pollutant loads. Implementation is to be a County plan. Measures that could apply to the plan include: improved street sweeping, storm system cleaning, litter control, and street repair.

Water Supply

There are three policies and 13 recommended actions in this section. Policy 2 encourages conservation. Actions recommended include built-in savings devices in new construction and the use of landscaping appropriate to the area's climate.

Solid Waste

This section includes 16 policies and 41 recommended actions. The operation of the arena will not be inconsistent with these policies and recommended actions.

Air Quality

There are four policies and 13 recommended actions in this section. At either Site A or Site B, light rail transportation, peninsula rail service and numerous bus lines are located within one mile of the site. Access to public transportation will reduce vehicular emissions by reducing the number of vehicles on the roadways.

B. ABAG REGIONAL PLAN 1980 SAN FRANCISCO BAY REGION

This plan was prepared by ABAG to provide a broad regional framework for local governments to evaluate and coordinate local plans, policies, and goals. The emphasis

of the regional plan is the concept of a City-Centered Region. Policy guidelines are established for growth and development and environmental quality.

C. 1982 BAY AREA AIR QUALITY PLAN (BAAQMD, ABAG, MTC)

The 1982 Bay Area Air Quality Plan was assembled to establish regional policies and guidelines in order to meet the requirements of the Clean Air Act, as amended through 1977. The Bay Area is a non-attainment area for ozone and carbon monoxide since Federal standards are exceeded for these pollutants. The Clean Air Act stipulates that standard attainment must occur by 1987. The Bay Area Air Quality Plan discusses a wide range of regulations, policies and procedures which will achieve this goal. Policies which are applicable to this project are those which reduce vehicular emissions through decreased overall motor vehicle usage.

D. SANTA CLARA COUNTY CORRIDOR EVALUATION

In 1979, the Santa Clara County Corridor Evaluation was completed which included an examination of nine transportation alternatives and several land use scenarios in Santa Clara County for the year 1990. This report concluded that State Routes 85 and 87 are primary transportation corridors and that they should be preserved for future transportation options. The development of an arena at any of the three proposed sites will not conflict with the recommendations of this study. Two of the proposed sites (Sites A and B) are located in proximity to the State Route 87 corridor.

E. REGIONAL TRANSPORTATION PLAN, NINE COUNTY SAN FRANCISCO BAY AREA (MTC)

This plan is a State Legislature-mandated plan that contains a regional transportation system with needs for the next ten years and priorities for construction and maintenance. The plan takes into consideration important transportation issues and sets goals, objectives, and policies. It also describes programs, actions, and responsibilities, and summarizes the cost of implementation. All the recommendations are oriented toward transportation projects and issues, none of which applies to the project.

F. THE HORIZON 2000 GENERAL PLAN - CITY OF SAN JOSE

The General Plan is an adopted statement of Policies for the physical development of a community. It represents official City Policy for the future character and quality of development. The General Plan establishes the foundation of information, analysis, conclusions, rationale, goals, objectives, and policies that provide guidence and recommendations for future action. Below is a summary of the policies of the General Plan which would be considered in the arena development.

Noise Policy

Noise objectives as stated in the San Jose's General Plan Noise Policy can be achieved. The City's acceptable noise level objective for interior noise is an Ldn of 45 dBA. Exterior noise levels for the short-range are not acceptable in excess of an Ldn of 60 for Public/Quasi-Public uses. These levels can be attained for exterior and interior noise levels at the site through structure design and layout. The proposed project would

also conform to the City of San Jose's acceptable long-term noise level objective for exterior noise levels.

Transportation Level of Service Policy

The proposed arena facility would not be consistent with San Jose's Transportation Level of Service Policy since project generated traffic would impact intersection that would be operating at Level of Service E. Mitigation measures are included in the project at some intersections that would improve traffic circulation to an acceptable level (Level of Service D or better). At other intersection mitigation measures either would not improve traffic to an acceptable level or are not proposed as part of the project. The unacceptable Level of Service at some of the intersection impacted by the project would only occur very infrequently such as when there is an arena event that starts at 6:00 PM with full attendance. Other intersections are impacted and no mitigation measures are included in the project.

Historic, Archaeological and Cultural Resources Policies

Historic and Cultural Resources policies would be implemented as structures of historical, cultural or architectural merit at Sites A and would require relocation or demolition prior to project development. Relocation of these structures will be considered as a means for preservation. If removal of the structure is impossible, and demolition unavoidable, efforts will be made to document the structures and to salvage architectural elements.

The Development of an arena at Site C will be consistent with the General Plan Archaeological Policy as a surface and subsurface archaeological investigation was completed during the environmental analysis process. Due to the unavailability of any significant area for surface and subsurface archaeological investigations at Sites A and B, an archaeological investigation will be completed prior to commencement of construction. Additionally, a qualified archaeologist will be present during grading and construction to monitor the site. If any archaeological resources are discovered at this time, mitigation measures may include relocating materials or altering project design. Accordingly, development of either Sites A or B will be consistent with General Plan archaeological policy.

Energy Policy

The development of an arena at any of the three sites will be consistent with the General Plan Energy Policy by locating public facilities in areas easily served by public transportation. In addition, lighting standards used in the arena facility parking areas will be in conformance with City of San Jose policies that require efficient use of energy.

Hazardous Materials Policy

The development of an arena will be consistent with the General Plan Hazardous Materials Policy as the transport, distribution and use of hazardous materials in the vicinity of the sites has been considered in order to protect the public health and safety.

Other General Plan Policies

Other General Plan policies which would apply to the arena development are discussed in the appropiate sections of the EIR. These are: Urban Design in the

sections on AESTHETIC RESEURCES; Air Quality in the sections on AIR QUALITY; and Services and facilities in the section on URBAN SERVICES.

G. JULIAN-STOCKTON MASTER PLAN, JULIAN-STOCKTON REDEVELOPMENT PLAN AND PROPOSED AMENDMENTS

Alternative Sites A and B are located in an area designated by the Redevelopment Agency of San Jose as the Julian-Stockton Redevelopment Area. A master plan and redevelopment plan have been prepared to allow for the development of up to 3,052,450 square feet of commercial and industrial development (City of San Jose, 1987). An Environmental Impact Report is currently being prepared for the implementation of this redevelopment plan.

Although the Environmental Impact Report for the Julian-Stockton area acknowledges that Sites A and B are being considered as candidate sites for the proposed arena facility, the report does not consider the environmental effects associated with the development of an arena facility in this area. Additionally, the Julian-Stockton EIR does not consider the reduced impacts associated with not developing Sites A and/or B with commercial and/or industrial land uses. The Redevelopment Agency of San Jose has stated that it is the purpose of the San Jose Arena Facility Environmental Impact Report to provide the necessary environmental clearance that would allow for the development of an arena facility within the Julian-Sockton Redevelopment Area (Redevelopment Agency of San Jose, 1987).

H. GUADALUPE RIVER PARK MASTER PLAN

Development of an arena at Site A would be within Zone D of the Guadalupe River Park Master Plan. Zone D is a 27.5 acre area, bounded by the proposed Riverfront Road on the west, West Santa Clara Street on the south, State Route 87 on the east, and New Julian Street on the north. This area of the river park is intended for large open lawn areas and groves of trees bounded by a six-acre lake. Development of Site A would require the placement of a temporary surface parking area at the location designated for private development in the Guadalupe River Park Master Plan. Because the arena facility would utilize this interim parking area until a multiple level parking structure is completed that would replace this interim parking area, the interim use is consistent with the Guadalupe River Park Master Plan.

Development on Site B would be within Zone E of the Guadalupe River Park Master Plan. Zone E is a 19 acre area, bounded by the future Riverfront Road on the west, New Julian Street on the south, private development to the east and Coleman Avenue to the north. This area of the park is intended to emphasize the urban wilderness experience while walking or riding on the River Walk along the meandering Guadalupe River. Development of an arena on Site B would be adjacent to an area designated for landscaping and a bicycle trail to the west and private development to the east. Therefore, locating Site B adjacent to the Guadalupe River where future urban development is anticipated would be consistent with the Guadalupe River Park Master Plan.

I. COYOTE CREEK MASTER PLAN AND ENVIRONMENTAL IMPACT STATEMENT (EIS)

Development of Site C for an arena would be consistent with the Coyote Creek Master Plan and EIS as development of this site would not be in an area planned for flood control facilities.

J. RINCON DE LOS ESTEROS REDEVELOPMENT PLAN

Site C is within the boundaries of the Rincon de los Esteros Redevelopment Plan. Development of this site for an arena would be consistent with this plan since the site is designated for Public/Quasi-Public uses.

K. GENERAL REDEVELOPMENT LAW

The three alternative sites for the project are located in Redevelopment Project Areas duly adopted by the San Jose City Council pursuant to California Redevelopment Law (California Health and Safety Code Section 33000 et. seq.).

The Redevelopment Plan for the Julian-Stockton Project Area was adopted on July 15, 1976 and amended on September 30, 1980 (First Amendment); August 25, 1981 (Second Amendment); August 30, 1983 (Third Amendment); and November 15, 1983 (Fourth Amendment).

The Redevelopment Plan for the Rincon de los Esteros Project Area was adopted on July 16, 1974 and amended on July 3, 1979 (First Amendment); November 20, 1979 (Second Amendment); August 25, 1981 (Third Amendment); June 8, 1982 (Fourth Amendment); August 30, 1983 (Fifth Amendment); and November 15, 1983 (Sixth Amendment); and March 5, 1985 (Seventh Amendment).

Pursuant to Section 33354.6 of California Redevelopment Law, the Redevelopment Agency is in the process of amending the Julian Stockton and Rincon de los Esteros Redevelopment Plans to add the Arena Project, "a significant additional capital improvement project," as a permissible redevelopment activity in the two Project Areas (Ontiveros, 1987).

L. SANTA CLARA COUNTY AIRPORT LAND USE COMMISSION VICINITY AREA PLAN

The San Jose International Airport Vicinity Area Plan was adopted by the San Jose City Council in 1980 and is currently being updated as part of the FAR Part 150 Noise Compatibility Study. The "vicinity area" is defined as the Airport's 65 CNEL noise contour, which includes alternative Sites A and B. The arena project would be consistent with the updated plan (scheduled for City Council adoption this year), provided that:

- interior noise levels are reduced to 45 CNEL (including public/quasi-public buildings);
- elevation levels do not exceed FAR Part 77 standards; and,
- avigation easements are dedicated to the City of San Jose.

PART TWO

SAN JOSE ARENA FACILITY EIR

SITE A ANALYSIS

AUGUST 1987

SECTION I

SITE A

EXISTING SETTING, POTENTIALLY SIGNIFICANT IMPACTS

AND MITIGATION MEASURES

A. LAND USE

EXISTING SETTING

1. Existing Land Uses

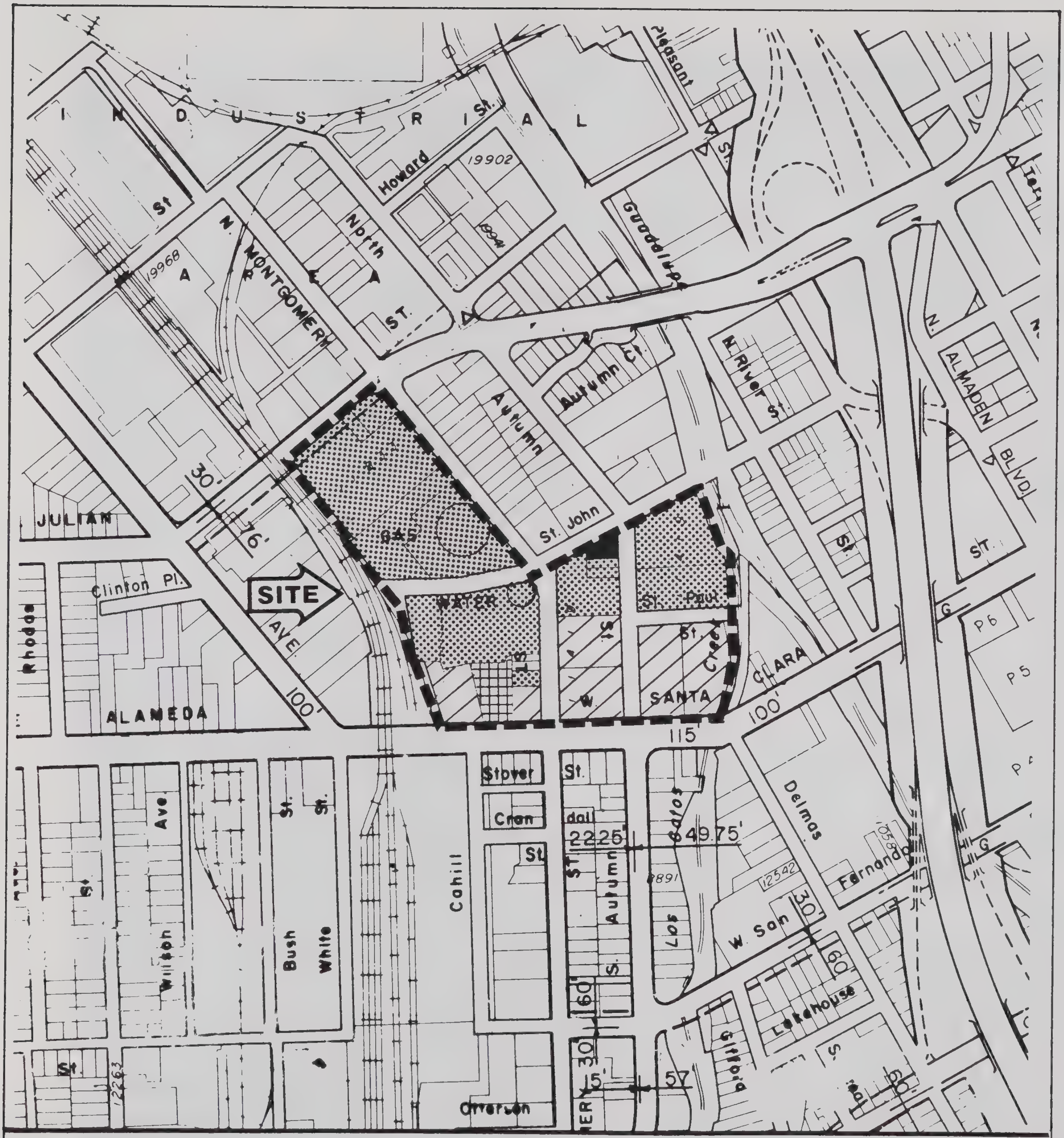
The existing land uses on the five blocks that constitute the project site are almost exclusively commercial and industrial with the only exception being two single family residences as shown on Figure A-1. The mosaic pattern of commercial, industrial and residential land uses reflects a sequence of transitions that have occurred over a long period of time in this older area of central San Jose. The land uses are generally of relatively low intensity with the overall building floor area to site ratio in the range of 20 percent to 30 percent. Substantial areas are occupied by outdoor storage and surface parking as shown on Figure A-2. Most of the buildings are single-story and relatively old, with the newest buildings being ten to 15 years old and many of the older buildings being more than 40 or 50 years old.

Many of the commercial uses along West Santa Clara Street are retail businesses which are oriented to high volumes of traffic on this major thoroughfare. The existing uses on the block of the project site located on the south side of West Santa Clara Street include a furniture store, printing shop and an automobile repair shop. One of the vacant buildings was recently occupied by a dental clinic. The remainder of the block is occupied by a burned building and vacant land or surface parking.

Commercial uses also dominate the north side of West Santa Clara Street. On the block east of North Autumn Street, approximately one-half of the block is occupied by an automobile dealership, with the remainder of the block being occupied by an automobile repair shop and a paramedical/ambulance service. There is a large vacant lot on the northeast corner of this block.

The land uses on the block located on the north side of Santa Clara Street between North Autumn and North Montgomery Streets, presently include a vacant automobile sales lot that was converted from its original use as a drive-in restaurant. Two other large commercial land uses on this block are an automobile service and repair shop and a carpet company. On the northeast corner of this block are two single family residences, both of which are two-stories and more than 50 years old. Just south of the single family residences is another two-story dwelling which has been converted to a commercial use (an air conditioning business).

Commercial and industrial uses also dominate the block on the north side of West Santa Clara Street, west of North Montgomerey Street. Commercial uses fronting on West Santa Clara Street include a gasoline service station (converted to commercial vehicle fuel storage), a photo copy store, a driving



INDUSTRIAL

COMMERCIAL

INDUSTRIAL/COMMERCIAL

RESIDENTIAL

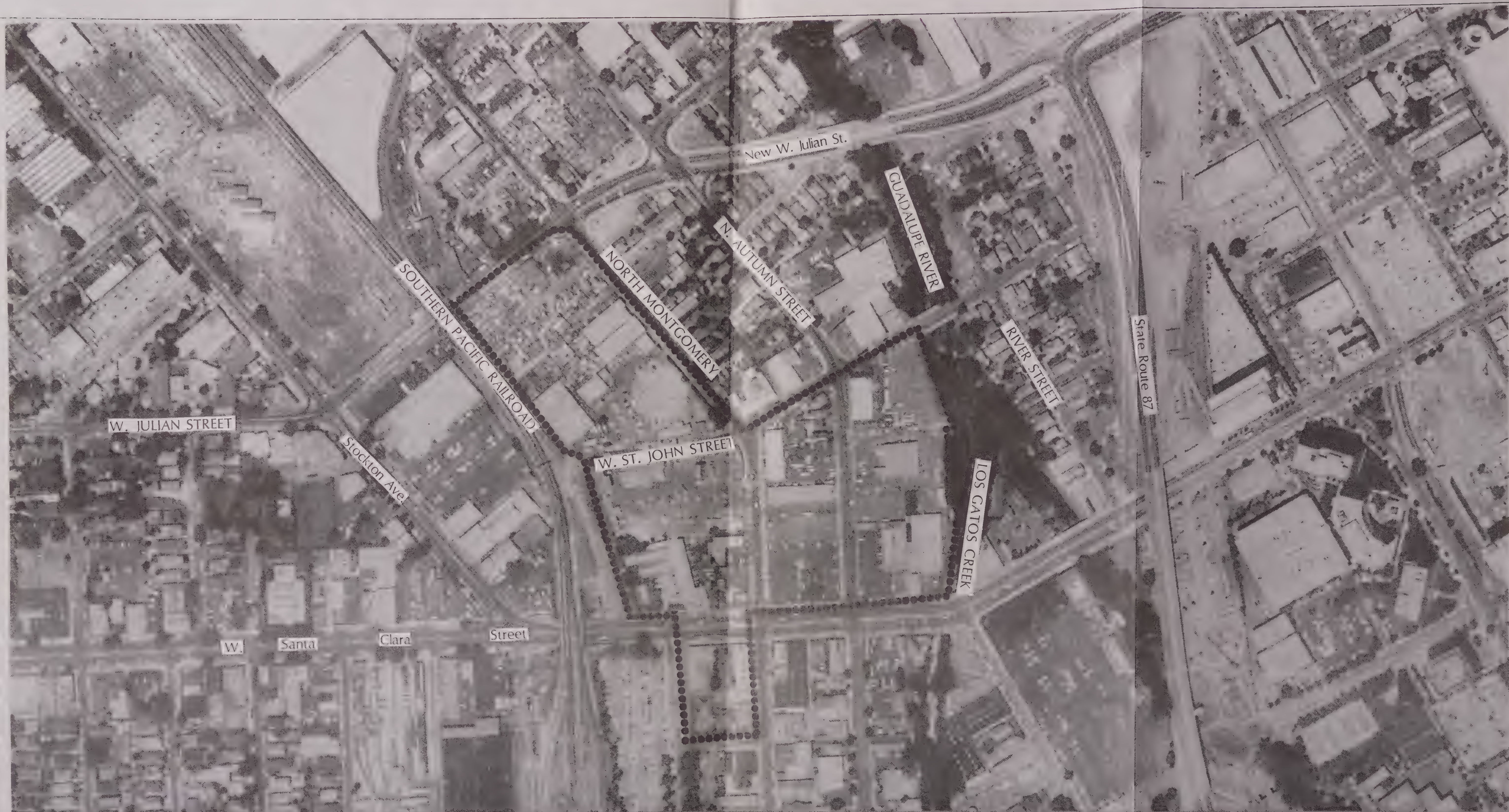
VACANT

SOURCE: CITY OF SAN JOSE (1987)

EXISTING LAND USES

0 500 Feet

FIGURE A-1



PROJECT SITE AND ADJACENT LAND USES | N | 1:300 | FIGURE A-2

school, and a nursery for indoor plants. The remainder of this block is occupied by automobile repair uses, shops and yard storage for the Pacific Gas and Electric Company (PG&E). The westerly side of this block was originally served from a railroad spur off of the Southern Pacific Railroad tracks which forms the westerly boundary of the site. The portion of the project site north of West St. John Street is also occupied by the PG&E yard and shop uses. Other uses on this block include automobile service and repair, yard storage of automobiles, as well as food and other distribution uses.

2. Surrounding Land Uses

A variety of land uses surround the project site, including commercial, industrial, residential, transportation and open space. Similar to the land uses within the project site, the land uses surrounding the site are also of generally low intensity and form a mosaic pattern that reflects a sequence of transitions that have occurred over a long period of time in this older area of central San Jose. Los Gatos Creek and Guadalupe River provide open space along the easterly boundary of the site. Across these waterways there is the remnant of an old, predominantly residential neighborhood which includes some commercial uses such as restaurants, and a taxicab company. Along the northerly side of West Santa Clara Street, to the east of the project site, is vacant land, a billboard, auto repair service, a professional office complex and retail commercial.

On the southerly side of West Santa Clara Street, to the east of the project site, are a variety of commercial uses including a billboard, photo processing shop, cocktail lounge, used automobile sales and repair shop, solar supply store and professional engineering office. Located to the southwest of the project site is a surface parking area for the Cahill Train Station.

The mainline Southern Pacific Railroad tracks are located along the westerly side of the project site. There are four billboards near or adjacent to the railroad tracks. Across the railroad tracks from the site are commercial uses, primarily automobile service and related uses, as well as a San Jose Unified School District facility. A new PG&E facility is located to the northwest of the site, on the north side of West Julian Street and west of the railroad tracks.

To the north of the project site, on the north side of West Julian Street, there are a variety of commercial uses and a few single family residences. The commercial uses include an automobile repair and service shop, cocktail lounge, barrel company, used building material supply, ice cream catering service, tile distribution company, and golfers supply shop. In addition to the commercial uses, there is a shelter for the homeless on North Montgomery Street, one block north of West Julian Street. On the north side of West Julian Street, between North Montgomery and North Autumn Streets, a new two-story office building is under construction that will be occupied by the Housing Authority.

On the south side of West Julian Street, and to the east of the project site, there is a mixture of industrial, commercial and residential uses. Along North Montgomery Street is a mixture of single family residences and automobile-related businesses. The San Jose Foundry is a heavy industrial use located on the northeast corner of West St. John Street and North Montgomery Street. Also along the north side of West St. John is a door company, empty warehouse

space and paper recycling company. To the north of the commercial and industrial uses, along North Autumn Street and Autumn Court, there are about two dozen single family residences which are part of an old residential neighborhood. A few single family residences have been converted to commercial uses. Among the single family residences is a corrigated metal "quonset hut." A vacant lot at the southeast corner of West Julian Street and North Montgomery Street is the future site of a shelter for the homeless to be called, "Julian Street Inn."

3. General Plan and Zoning Map Designations

The project site is currently zoned M-1 and M-4 (Manufacturing) and C-3 (Commercial). The M-1 and M-4 districts are concentrated in the northerly and southerly portions of the project site, while the C-3 district is along Santa Clara, Montgomery and Autumn Streets.

The City of San Jose's Horizon 2000 General Plan designates the project site for Combined Industrial/Commercial land uses. The proposed project is not consistent with the present City of San Jose's General Plan Land Use designation. The General Plan Land Use designation for the site would be amended from Combined Industrial/Commercial use to Public/Quasi-Public use and the Alternate Use Policy would be amended to include the proposed arena use as described in PART ONE, SECTION I., E. PROJECT ACTIONS: USES OF THE EIR.

POTENTIALLY SIGNIFICANT IMPACTS

1. Land Use Effects

The primary land use impacts of developing the proposed arena facility center around converting the project site from its existing mix of residential, commercial and industrial land uses to a higher intensity public land use. The arena facility would substantially alter the character of the site and surrounding area by eliminating the mixture of old, relatively low intensity land uses. The arena structure will be the largest and tallest building in the area having a height of approximately 65 feet above the existing grade and a footprint of approximately 3.7 acres. Most of the remaining site would be occupied by surface and structured parking. The impacts associated with development of an arena at this site would mostly result from loss or relocation of existing businesses, demolition, site clearing and construction of the arena complex and from the introduction of relatively large numbers of people into the project area during its operation.

Construction and operation of the arena facility would result in several impacts that are either part of the land use change or result directly or indirectly from it. The land use changes resulting from construction and operation of the arena facility would involve several impacts. The significant land use impacts are composed of several components including the following: 1) changes in traffic circulation resulting both from closure of public roadways and the addition of arena-generated traffic; 2) displacement of two residences and approximately 20 to 30 businesses; 3) increased noise; 4) potential impacts to archaeologic and historic resources; and 5) impacts to adjacent and surrounding neighborhoods resulting from the introduction of large numbers of people into the project area. The neighborhood impacts are described below and other impacts are described subsequently within their respective section of this Environmental Impact Report.

Within the general project area there are several neighborhoods as shown in Figure A-3 which depict a circle with a one mile radius extending out from the site. The term "neighborhood," as used in this discussion is a relatively distinct or recognizable area with physical boundaries and residential characteristics. Some of the characteristics include the age and architectural style of homes, set back of the homes from the street, the width of the streets and width of landscaping between the curb and sidewalk, and the type of street trees such as sycamores, palms or elms. These residential characteristics and boundaries give a neighborhood a unique identity that is recognizable by the residents that live there. The discussion of neighborhood in this Environmental Impact Report does not constitute one neighborhood, but rather many which can be identified by a distinctive name and by distinctive boundaries. This Environmental Impact Report includes an analysis of all neighborhoods that could potentially be affected although it does not identify specific neighborhoods by name. The significance of impacts is based upon factors such as distance and physical constraints (i.e., freeways, major roadways, and development etc.).

2. Neighborhood Impacts

Development of the proposed 20,000 seat arena would introduce a significant new use as well as a new structure into the project area. Concerns about the impacts of the proposed arena were raised by residents in the vicinity as recorded during the public scoping meeting for this Environmental Impact Report (refer to PART FIVE, Section III., Community Input). The general area around the project site includes older established neighborhoods and in some cases historic districts. Neighborhood concerns have been raised about potentially significant impacts that the arena facility may have on the character of these historic neighborhoods as well as on the quality of life. Although these impacts are difficult to measure and quantify in the context of an Environmental Impact Report, the arena facility would substantially alter the character of the site and immediate surrounding area. These impacts would be significant and unavoidable in the immediate area of the arena and decrease with distance from the arena site to a nonsignificant, but preceptible level of impact. In the context of this Environmental Impact Report, the impact on the "quality of life" of the arena area residents is measured in terms of physical impacts, such as traffic, air quality and services. These impacts are evaluated and described within their respective section of this EIR. The general types of neighborhood impacts that surrounding residents would experience are chracterized below.

Neighborhood impacts would result from the introduction of arena patrons into a neighborhood, thereby increasing vehicular and pedestrian traffic and on-street parking. Both increased traffic and on-street parking have the greatest effects on narrow roadways, examples of which are Sunol Street, Atlas Avenue, and South Keeble Avenue. The impacts resulting from introducing arena patrons into a neighborhood include increased traffic, and vehicular noise, as well as noise from loud conversations and car stereos. During some events there may be tailgate parties that generate noise and activities which are also intrusive to neighborhoods. Another impact is littering, both on public roadways and on private property. Substantial pedestrian traffic may tend to damage private landscaping, particularly on corner lots where there is a tendency for pedestrians to take a "short cut" across a lawn or through shrubbery. Late evening departures from an arena event would result in neighborhood intrusions from noise and activity associated with pedestrian traffic, slamming

ALTERNATIVE SITE A

ONE MILE RADIUS

PROXIMITY TO RESIDENCES

0 2500 Feet

FIGURE A-3

of car doors and vehicular noises as vehicles drive out of the project area. Another neighborhood impact is the displacement of on-street parking for residents of a neighborhood by arena patrons. On-street parking by arena patrons may partially block some driveways making it difficult to pull into or out of driveways. The combined effects of on-street parking, increased vehicular and pedestrian traffic, increased noise, and litter would have a cumulative impact upon neighborhoods that would significantly impact the quality of life. The net effect of these neighborhood impacts would be to adversely change the character of a neighborhood.

The level of impact on neighborhood character and quality of life is a subjective matter that is difficult to quantify. The component that constitutes neighborhood impacts such as noise, air quality, and vehicular and pedestrian traffic have, to some degree, been quantified in their respective sections of this Environmental Impact Report. The combined effect of the components of neighborhood impacts have a total net effect that can only be estimated and described in general and comparative terms as presented below.

Neighborhood impacts, and the change in character they can cause would be significant in the immediate area of the arena facility and less significant with increased distance from the project site (refer to Figure A-4). With increased distance from the arena vicinity, the intensity of neighborhood impacts and the frequency of their occurrence would decrease. In addition to distance from the arena, the intensity and frequency of occurrence of neighborhood impacts would generally be reduced by physical barriers or obstacles to pedestrian or vehicular traffic such as freeways, railroad tracks, major roadways and continuous industrial or commercial development. These barriers have been taken into account when assessing the frequency and intensity of impacts upon the character of neighborhoods and the quality of life. Based upon the intensity and frequency of occurrence, the neighborhood impacts have been divided into three categories which are mapped on Figure A-4 and described below:

1) **Severe Neighborhood Impacts** - result from frequent and significant increases in traffic, on-street parking, littering, and noise from vehicle, car stereos, etc., thereby causing a significant change in the character of a neighborhood.

2) **Moderate Neighborhood Impacts** - result from increases in traffic, on street parking, littering, and noise from vehicle, car stereos, etc., but occurring less frequently and with less intensity than in the "Severe Neighborhood Impact" category depending upon the size and time of the events. Moderate neighborhood impacts have the potential to cause a significant change in the character of a neighborhood.

3) **Perceptible Neighborhood Impacts** - result from increased drive through traffic, minimal or infrequent on-street parking, and noise increases. The net effect of these impacts would be perceptible to neighborhood residents but does not significantly change the overall character of the neighborhood.

The most severely impacted neighborhoods are located along North Autumn Street and River Street as illustrated on Figure A-4. Other significantly

IMPACTED NEIGHBORHOOD AREAS | ARENA SITE - A | FIGURE A-4

impacted neighborhoods are on the south side of West Santa Clara Street in the area of Delmas Avenue and West San Fernando Street. Other neighborhoods that would be moderately impacted are located to the west of the site on both the north and south sides of The Alameda. These roadways include Sunol, Wilson, Rhodes, Morrison, Atlas, Keeble, West Julian, Cinnabar, Lensen, Pershing, Harding, Hoover, and Schiele. Neighborhoods located to the west of Race street and to the southwest of The Alameda would experience perceptible neighborhood impacts including increased arena patron traffic and infrequent or occasional on-street parking. Some neighborhoods to the northeast of the site, on both sides of North First Street would be perceptibly impacted.

The proposed arena facility is not anticipated to have substantial effects upon the surrounding commercial and industrial businesses, which usually operate during normal business hours (i.e., 8:00 AM to 5:00 PM). The majority of the businesses in the project are not open in the evening and nighttime hours, when there is the highest potential for conflicts between surrounding land uses and the arena patrons.

3. <u>Impacts of General Plan Amendments</u>

The project proposed amendments to San Jose's General Plan that would allow development of the proposed arena facility as described in PART ONE, SECTION I., E. PROJECT ACTIONS: USES OF THE EIR. The ultimate land use impacts that would result from the proposed General Plan amendments are those impacts discussed in this environmental document. These impacts include:

- Increased traffic in the project area;
- Construction of structures not in scale with surrounding land uses; and
- Displacement of approximately two residential dwellings and between 20 and 30 businesses;
- Displacement of potential historically-significant structures;
- Potential impacts to archaeological resources; and
- Increased noise levels in surrounding neighborhoods.

The neighborhood impacts (such as pedestrian traffic, on-street parking, and noise outside of the immediate arena vicinity) are the most significant impact that would result from the proposed General Plan amendments for development of the arena facility. Most of the other impacts would result from implementation of the existing General Plan, although these impacts would occur to a lesser extent.

MITIGATION MEASURES

The following mitigation measures could reasonably be expected to reduce adverse land use impacts associated with the implementation of the proposed San Jose Arena Facility.

- Neighborhood impacts from the intrusion of arena patron traffic, pedestrians, noise, and on-street parking could be reduced by a temporary barricade system

during events at the arena that would exclude arena traffic and by a parking sticker program for residents. Neighborhood impacts can also be reduced by an effective signing program that directs arena patrons unfamiliar with the area to parking garages and parking lots away from the neighborhoods. Implementation of these mitigation measures would reduce the neighborhood impacts to a nonsignificant level in those areas designated on Figure A-4 as "Moderate Neighborhood Impacts." Even with the implementation of these mitigation measures there would be significant and unavoidable neighborhood impacts in the areas designated on Figure A-4 as "Severe Neighborhood Impacts." **(Included in Project)**

- Increased traffic in neighborhoods generated by arena patrons, could in some cases, be reduced by a traffic diverter system that restricts through traffic. This mitigation measure creates secondary impacts since diverted traffic usually impacts other areas and would not reduce a significant impact to a nonsignificant level. **(Not Presently Included in Project)**

- Extensive landscaping buffers and berming around the perimeter of the arena site and arena building and through the parking lots could reduce the apparant land use intensity (i.e., height and bulk) of the proposed arena structure on adjacent and surrounding land uses such as those along Santa Clara Street. Careful siting, including setbacks and orientation, and architectural treatment of the arena facility would reduce the visual impacts of the arena structure. This mitigation would not reduce the impact of the height and mass of the building and intensity of the land use to an nonsignificant level. **(Not Presently Included in Project)**

- Mitigation measures presented in the Historic Resources and Archaeologic Resources sections of this report for historically-significant structures can be implemented (refer to PART TWO, SECTION I., L. ARCHAEOLOGIC RESOURCES and M. HISTORIC RESOURCES for specific mitigations). These mitigation measures could, in some cases reduce the impacts to historical and archaeological resources to an non-significant level, but in other cases there may be significant unavoidable impacts, particularly to archaeological resources.

- The Redevelopment Agency of the City of San Jose would compensate the owners of residences and businesses that are displaced or have their property acquired by paying fair market values and appropriate relocation assistance payments in accordance with the California Government Code. These mitigation measures would reduce the impacts to displaced residences to an nonsignificant impact, but where it would not be feasible to relocate a business, there would be a significant unavoidable impact as dicussed in PART TWO, SECTION I., N. RESIDENTIAL AND BUSINESS RELOCATION. **(Included in Project)**

B. TRAFFIC AND CIRCULATION

Implementation of the proposed arena faciltiy would impact the existing roadway and circulation system by the addition of additional vehicle trips to the project area. These impacts would be experienced on the regional, local and project site circulation systems. This section discusses the existing setting, method of analysis, potential environmental impacts (including cumulative) and mitigation measures for the identified impacts.

EXISTING SETTING

The objective of this analysis is to determine how the transportation system will be affected by the proposed arena project. For a complete traffic analysis of the site under consideration, five different time scenarios were considered for each of the two different seating capacities. The five scenarios are:

- Weekday PM Peak Hour Analysis (between 4:00 and 6:00 PM) with an arena event starting time of 6:00 PM (listed as "Wkdy PM" in tables);

- Weekday Evening Peak Hour Analysis with an arena event starting time of 7:30 PM (listed as "Wkdy Eve" in tables);

- Weekday Late Evening Peak Hour Analysis with an arena event ending time of 10:30 PM (listed as "Wkdy Late Eve" in tables);

- Friday Evening Peak Hour Analysis with an arena event starting time 7:30 PM (listed as "Fri Eve" in tables); and

- Saturday Evening Peak Hour Analysis with an arena event starting time of 7:30 PM (listed as "Sat Eve" in tables).

The two different seating capacities considered were 17,500 seats and 20,000 seats. The different scenarios were evaluated for existing (including existing plus approved projects), Year-1991 and Year-2000 traffic conditions. **Therefore, this analysis provides for a total of 24 different scenarios that were analyzed for potential traffic impacts that would result from implementation of the proposed arena facility project.**

For matinee events between 1:30 and 4:00 PM, a traffic analysis was not conducted because the attendance at these event is projected to be only 11,000-patrons, which is not as critical as the 17,500 or 20,000 patron attendance level for the weekday PM peak hour.

1. Data Collection - Method of Analysis

   The City of San Jose selected 21 critical intersections around the proposed project site for traffic impact analysis. These locations are shown in Figure A-5.

   Data collected for similar arena facilities in other areas indicated that approximately 93 percent of the arena patrons arrive during the hour before the start of the event. For an event starting at 6:00 PM, ninety three percent would arrive during the PM peak hour (between 5:00 and 6:00 PM) and the remaining seven percent would arrive at other times. For an event starting at 7:30 PM, four percent of the patrons would arrive during the PM peak hour.

TRAFFIC ANALYSIS INTERSECTION LOCATIONS

N

FIGURE A-5

The departure pattern varies more so by the type of event. Studies show that for basketball events, an estimate 48 percent of the patrons leave before the end of the event, while for entertainment events, only seven percent were found to have departed the surveyed site prior to the conclusion of the event.

Approximately two to five times a year, arena events may begin as early as 6:00 PM. These are events which would be broadcasted to audiences nation-wide (Cunningham, 1987). For these events, the peak hour of arena patron arrival would occur during the PM peak period. However, the starting time for most arena events is expected to be 7:30 PM, with the peak hour for arena patron arrival occurring between 6:30 and 7:30 PM. An event with an ending time around 10:30 PM would result in a peak hour for arena patron departure of around 10:30 to 11:30 PM.

Recent traffic counts for the PM peak hour were obtained from the City of San Jose files. For intersection locations where counts were taken during the previous years, an annual growth factor of 3.6 percent was applied to reflect existing (1987) traffic conditions (City of San Jose, 1987).

The peak hour counts for the remaining time periods were obtained from recent manual turning movement counts conducted by Barton-Aschman Associates, Incorporated. Traffic counts were taken during the evening period between 6:30 and 8:30 PM and the late evening period between 10:00 PM and 12:00 Midnight. The traffic counts conducted on Friday evenings between 6:30 PM and 8:30 PM reflected the increased activity level of the general area. The Center of Performing Arts, Montgomery Theater and Civic Auditorium are all located in the vicinity of the project site. On the Friday evenings when the counts were conducted, these facilities held events that attracted peak season crowds.

2. Intersection Operation

The traffic conditions at an intersection can be described in the terms of Level of Service (LOS). Level of Service is a qualitative description of an intersection's operation, based on the amount of traffic, conflicting traffic movements, delays and congestion. Level of Service can range from A, representing free-flow conditions, to F, representing jammed conditions. Generally, the LOS is derived from the ratio of traffic volumes and available capacity shown as V/C ratios. The various LOS, their descriptions and range of V/C ratios are shown in Table A-1.

A signalized intersection's LOS can be calculated with a number of different methods. The City of San Jose has adopted its own method which is based on critical traffic movements. In this method, the volume of cars completing the turning movements that dictate the operation of the intersection are added together. The sum is divided by the capacity of the movements, and a volume to capacity ratio is obtained. The volume-to-capacity ratio is correlated to a level of service described in Table A-1.

An intersection operating under STOP control can be evaluated using the methodology described in the Highway Capacity Manual, Special Report 209, published by the Transportation Research Board. Unlike the level of service definitions given in Table A-1 for signalized intersections, the level of service criteria for this methodology are stated in very general terms, and are related to general delay and reserve capacity ranges.

TABLE A-1

INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Interpretation	V/C Ratio
A, B	Uncongested operations; all queues clear in a single signal cycle.	Less Than .7
C	Light congestion; occasional backups on critical approaches.	.700 - .799
D	Significant congestion on critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	.800 - .899
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es).	.900 - .999
F	Total breakdown, stop-and-go operation.	1.0 And Greater

Source: Highway Capacity Manual (1985)

Existing Intersection Level of Service

The results of the level of service calculations performed for the 21 intersections for the different time periods are presented in Table A-2. In general, the City of San Jose considers any intersection operating below LOS D as unacceptable and therefore is considered significant in terms of the California Environmental Quality Act. The results of the intersection LOS indicated the following number of intersections with unacceptable operations associated with each of the scenarios under existing conditions..

- Weekday PM peak hour: 5 intersections;
- Weekday Evening peak hour: None;
- Weekday Late Evening peak hour: None;
- Friday Evening peak hour: 1 intersection; and
- Saturday Evening peak hour: None.

Therefore, under existing conditions, five intersections would be considered to have a significant impact during the Weekday PM peak hour.

3. Hourly Traffic Variation

Traffic volumes on the roadway system vary over the 24 hour period and over the seven days of the week. During the weekday AM and PM peak periods, there are more vehicles on the roadways than during the mid-day period. At night, traffic volumes on most roadways are relatively low. On the weekends, the average daily traffic (ADT) is lower than for a typical weekday.

Different types of roadway facilities have different hourly variations throughout the day. For example, major arterials carrying heavy commuter traffic have a different pattern from roadways serving retail areas.

In order to determine the travel pattern for the area in the vicinity of the project site, 24 hour counts were conducted at the following locations (refer to Figure A-6):

- Almaden Boulevard south of Santa Clara Street;
- Santa Clara Street east of Autumn Street;
- The Alameda south of Shasta Avenue;
- Julian Street east of the Southern Pacific overpass;
- Shasta Avenue west of The Alameda (Friday and Saturday count); and
- Hanchett Avenue west of The Alameda (Friday and Saturday count).

The machine counts were taken in May, 1987. The highest weekday and Saturday daily traffic volumes are given in Table A-3. The hourly totals for these counts were plotted in graphical form to determine the hourly travel pattern, the traffic volumes during peak travel times and the off-peak travel characteristics. The hourly variations for the six locations are shown in Figures A-7 to A-23.

The count data show that for all locations measured, the weekday with the highest traffic volumes is Friday. Also, the amount of traffic on the roadways is higher on Fridays than Saturdays. During the weekdays, the AM peak hour traffic volumes equal or exceed the PM peak hour volumes. Generally, the traffic volumes drop sharply after 6:00 PM.

TABLE A-2

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM LOS/a/	WKDY PM V/C/b/	WKDY EVE. LOS	WKDY EVE. V/C	WKDY LATE EVE. LOS	WKDY LATE EVE. V/C	FRI. EVE. LOS	FRI. EVE. V/C	SAT. EVE. LOS	SAT. EVE. V/C
Alameda & Taylor/Naglee	E	.928	A	.293	A	.136	A	.563	N.A.	
Stockton & Taylor	A	.462	A	.116	A	.047	A	.222	N.A.	
Coleman & Taylor	D	.821	A	.137	A	.079	A	.279	N.A.	
SR 87 & Taylor	C	.767	A	.337	A	.126	A	.474	N.A.	
SR 87 Off-Ramp (SB) & Coleman	F	1.072	A	.457	A	.176	A	.550	N.A.	
San Pedro & Julian	E/d/		C		A		E		A	
Market & Julian	E	.960	A	.325	A	.194	A	.436	A	.299
Alameda & Julian/Hanchett	B	.688	A	.210	A	.111	A	.362	A	.220
Stockton & Julian	D	.813	A	.225	A	.138	A	.369	A	.153
Montgomery & Julian	A	.501	A	.122	A	.047	A	.243		
SR 87 On-Ramp (SB) & Julian	N.A./c/		N.A.		N.A.		N.A.		N.A.	
SR 87 On-Ramp (NB)/Notre Dame & Julian	D	.811	A	.372	A	.084	A	.274	A	.138
Alameda/Race & Martin	C	.718	A	.242	A	.126	A	.360	A	.201
Stockton & Alameda	F/d/		A		A		A		A	
Cahill & Alameda	B	.645	A	.235	A	.115	A	.305	N.A.	
Montgomery & Alameda	A	.564	A	.186	A	.079	A	.279	A	.160
Autumn & Santa Clara	A	.353	A	.131	A	.080	A	.202	A	.112
SR 87 Off-Ramp (NB) & Santa Clara	N.A.		N.A.		N.A.		N.A.		N.A.	
Santa Teresa (N. Almaden) & Santa Clara	D	.845	A	.329	A	.171	A	.408	A	.230
Notre Dame & Santa Clara	B	.632	A	.246	A	.141	A	.400	A	.230

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

MACHINE COUNT LOCATIONS

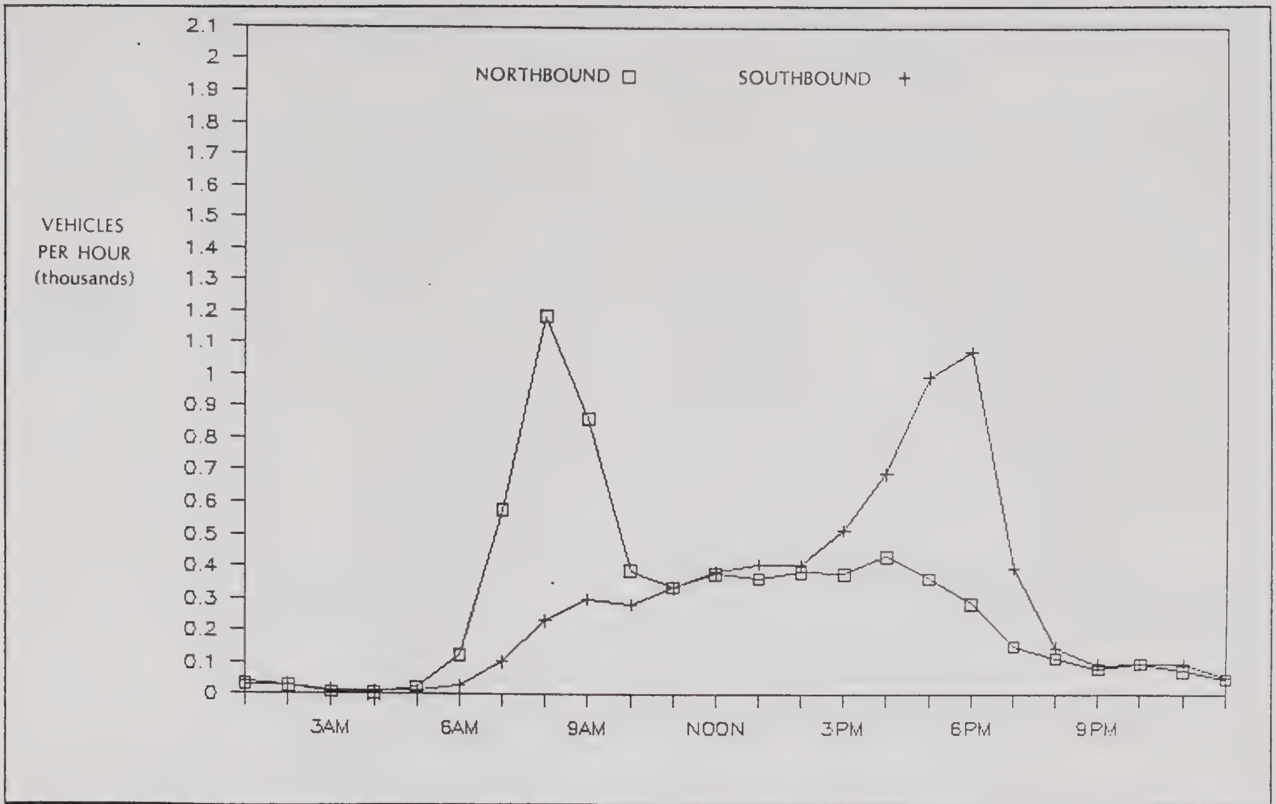
FIGURE A-6

TABLE A-3

SUMMARY OF 24-HOUR MACHINE COUNTS

Count Location			24-Hour Traffic Volumes: Highest Weekday/a/	24-Hour Traffic Volumes: Saturday
1.	Almaden Boulevard south of Santa Clara (Arterial - Range of Desirable Daily Volume - 7,500 - over)	NB/b/	12,055	5,899
		SB/c/	9,966	4,460
		Total	22,021	10,359
2.	Santa Clara Street east of Autumn (Arterial - Range of Desirable Daily Volume - 7,500 - over)	EB	11,570	6,948
		WB	9,854	6,348
		Total	21,424	13,296
3.	The Alameda south of Shasta (Arterial - Range of Desirable Daily Volume - 7,500 - over)	NB	16,082	9,133
		SB	14,412	8,625
		Total	30,494	17,758
4.	Julian Street east of So. Pacific overpass (Arterial - Range of Desirable Daily Volume - 7,500 - over)	EB/d/	5,663	2,297
		WB/e/	6,683	2,863
		Total	12,346	5,160
5.	Shasta Avenue west of The Alameda (Minor Residential - Range of Desirable Daily Volume - 0 - 2,500)	EB	--	--
		WB	--	--
		Total	694	499
6.	Hanchett Avenue west of The Alameda (Collector - Range of Desirable Daily Volume - 2,500 - 7,500)	EB	--	--
		WB	--	--
		Total	2,556	1,241
7.	Stockton Avenue south of Lenzen/g/ (Collector - Range of Desirable Daily Volume - 2,500 - 7,500)	NB	6,755	N.A./f/
		SB	6,718	
		Total	13,473	

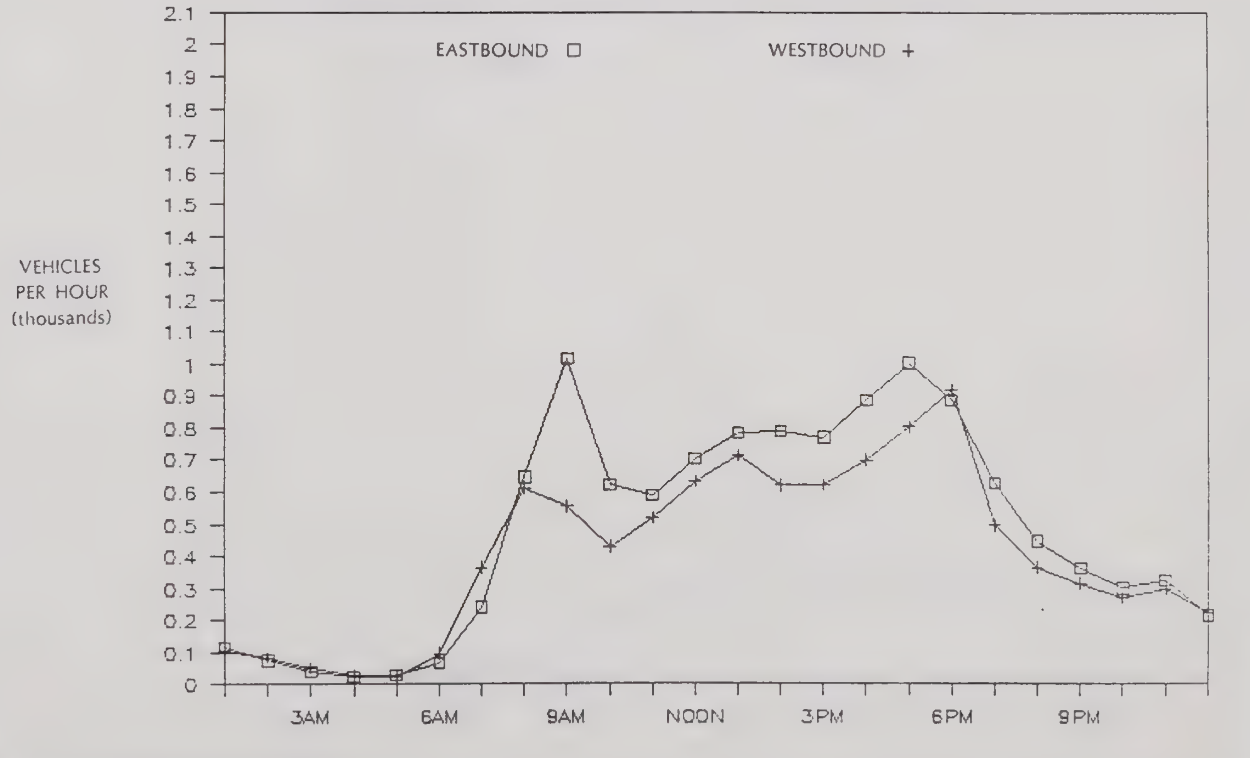
/a/ At all count locations, highest weekday volumes occurred on Fridays
/b/ NB = Northbound
/c/ SB = Southbound
/d/ EB = Eastbound
/e/ WB = Westbound
/f/ N.A. = Not Available
/g/ Earlier count taken on January 29, 1987.



STOCKTON SOUTH OF LENZEN

DAILY TRAFFIC PATTERN THURSDAY 1/29/87

FIGURE A-7

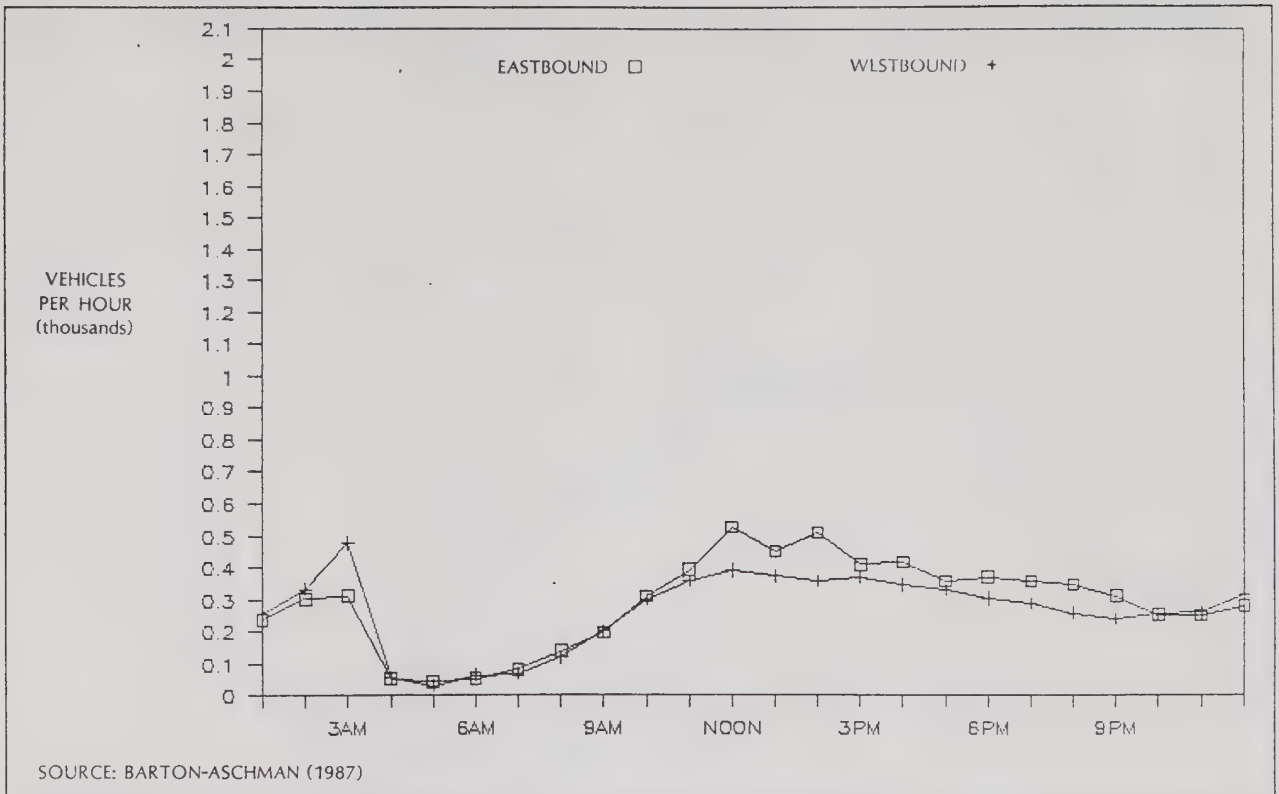


SOURCE: BARTON-ASCHMAN(1987)

SANTA CLARA EAST OF AUTUMN

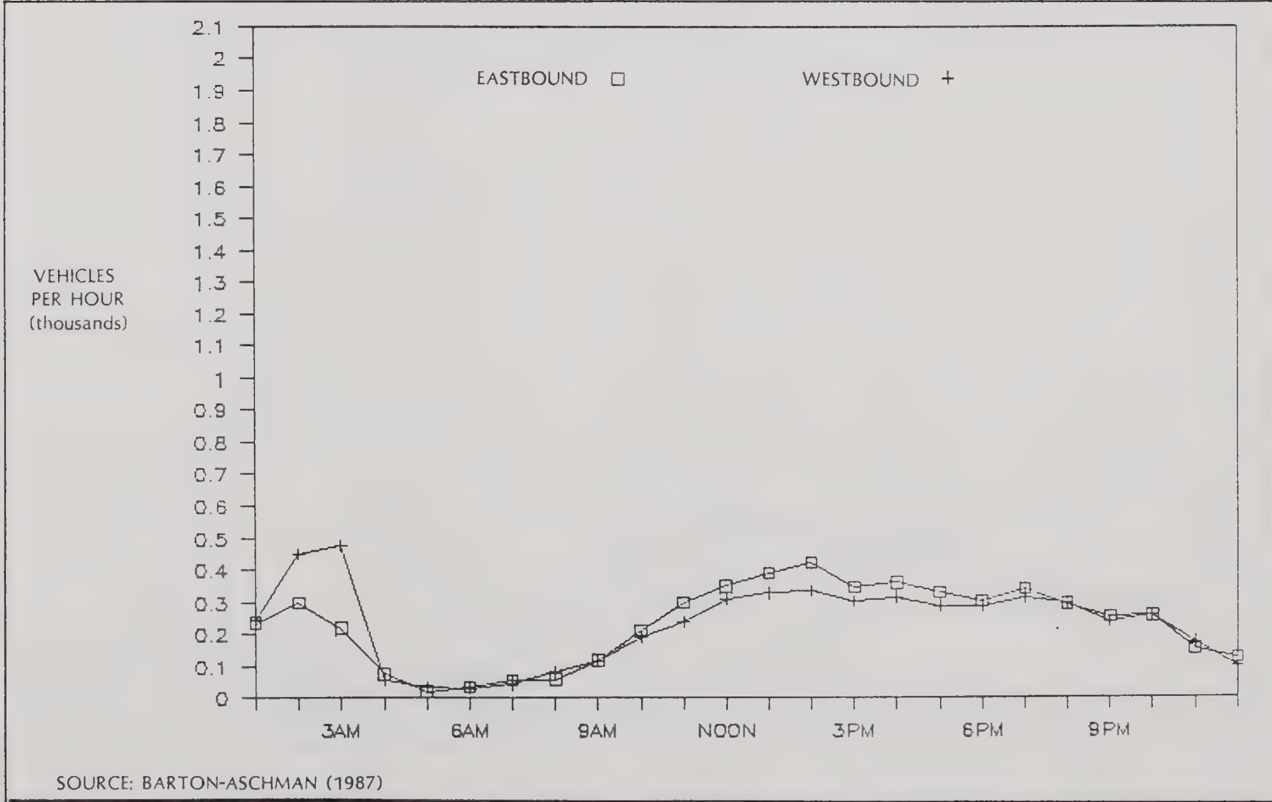
DAILY TRAFFIC PATTERN FRIDAY 5/8/87

FIGURE A-8



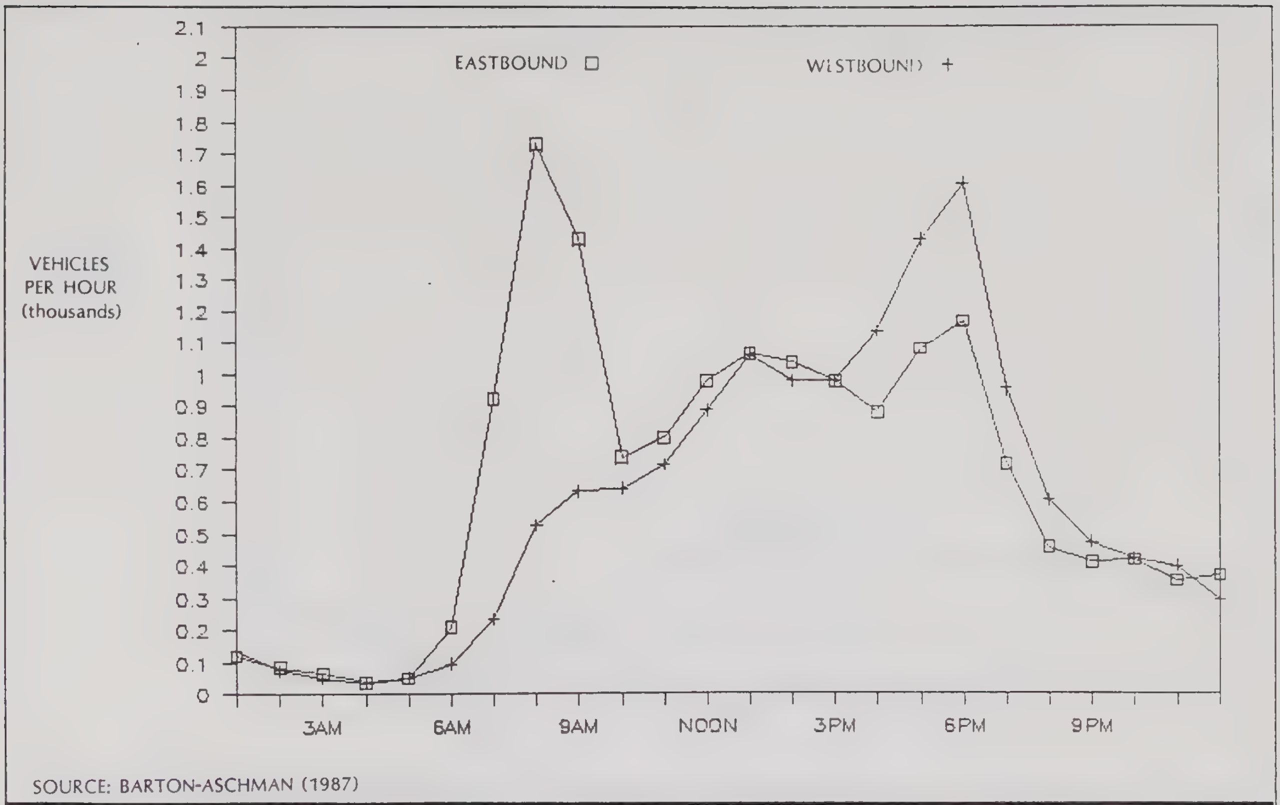
SANTA CLARA EAST OF AUTUMN

DAILY TRAFFIC PATTERN SATURDAY 5/9/87 FIGURE A-9

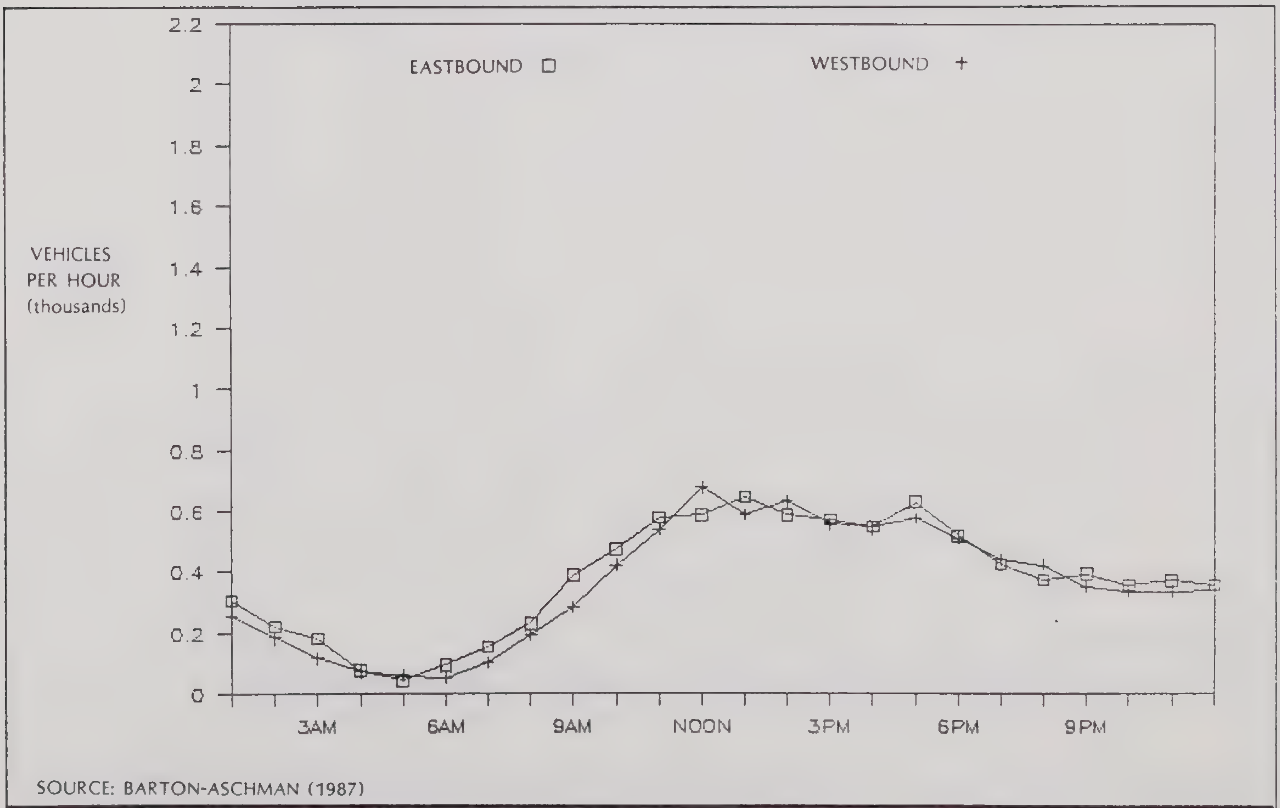


SANTA CLARA EAST OF AUTUMN

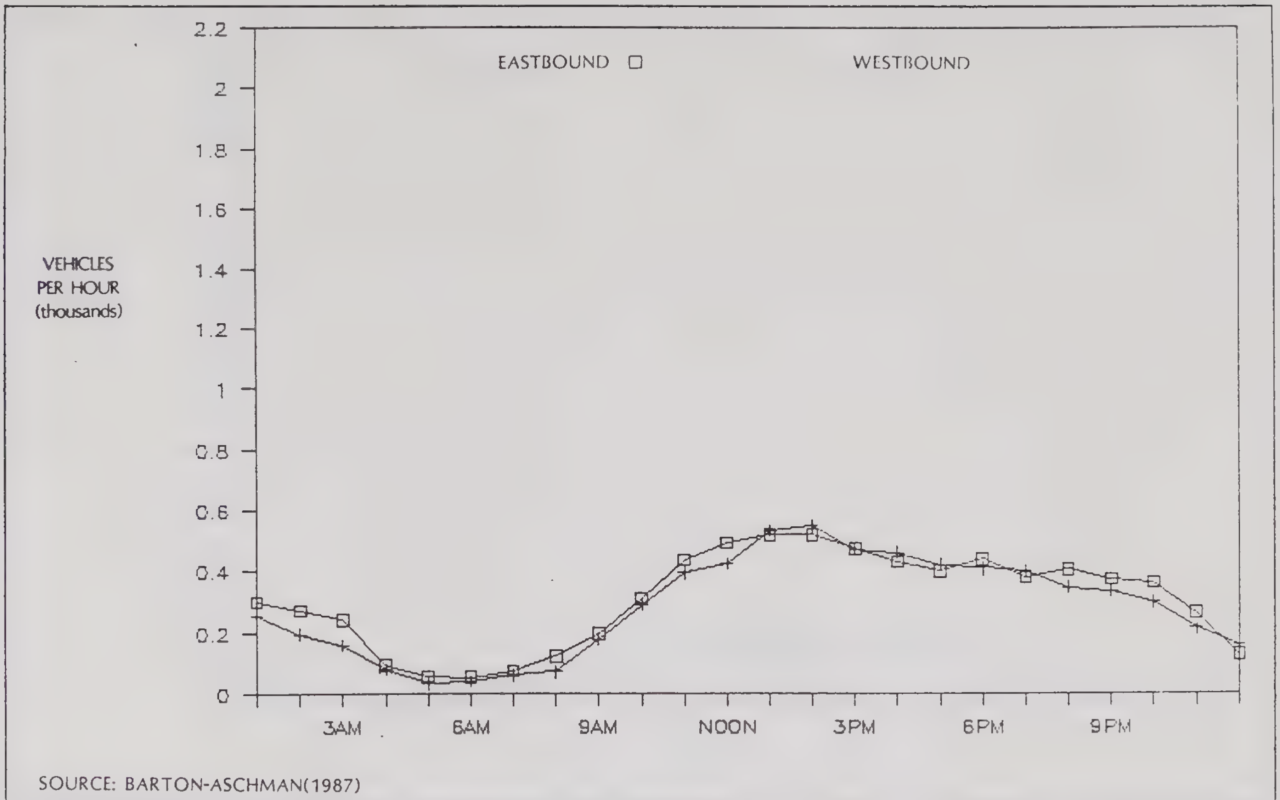
DAILY TRAFFIC PATTERN SUNDAY 5/10/87 FIGURE A-10



THE ALAMEDA SOUTH OF SHASTA
DAILY TRAFFIC PATTERN FRIDAY 5/8/87 FIGURE A-11

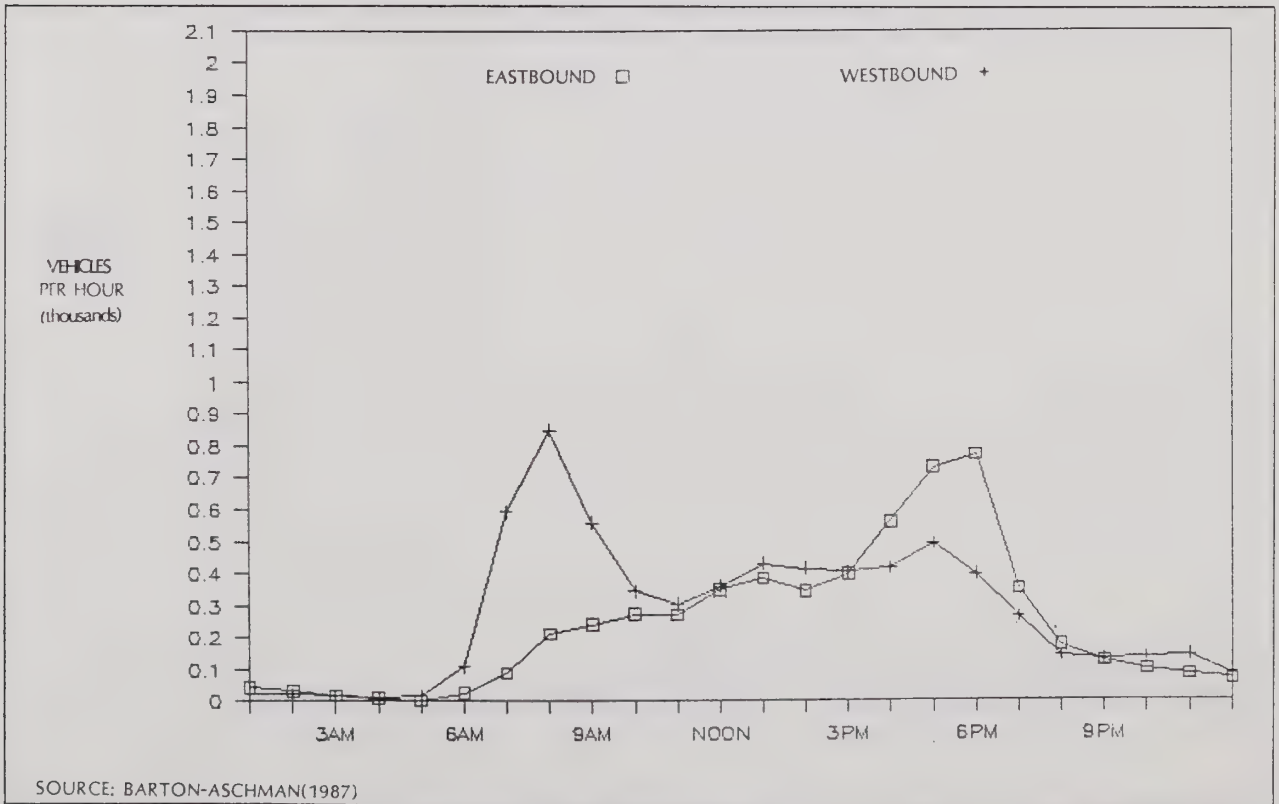


THE ALAMEDA SOUTH OF SHASTA
DAILY TRAFFIC PATTERN SATURDAY 5/9/87 FIGURE A-12



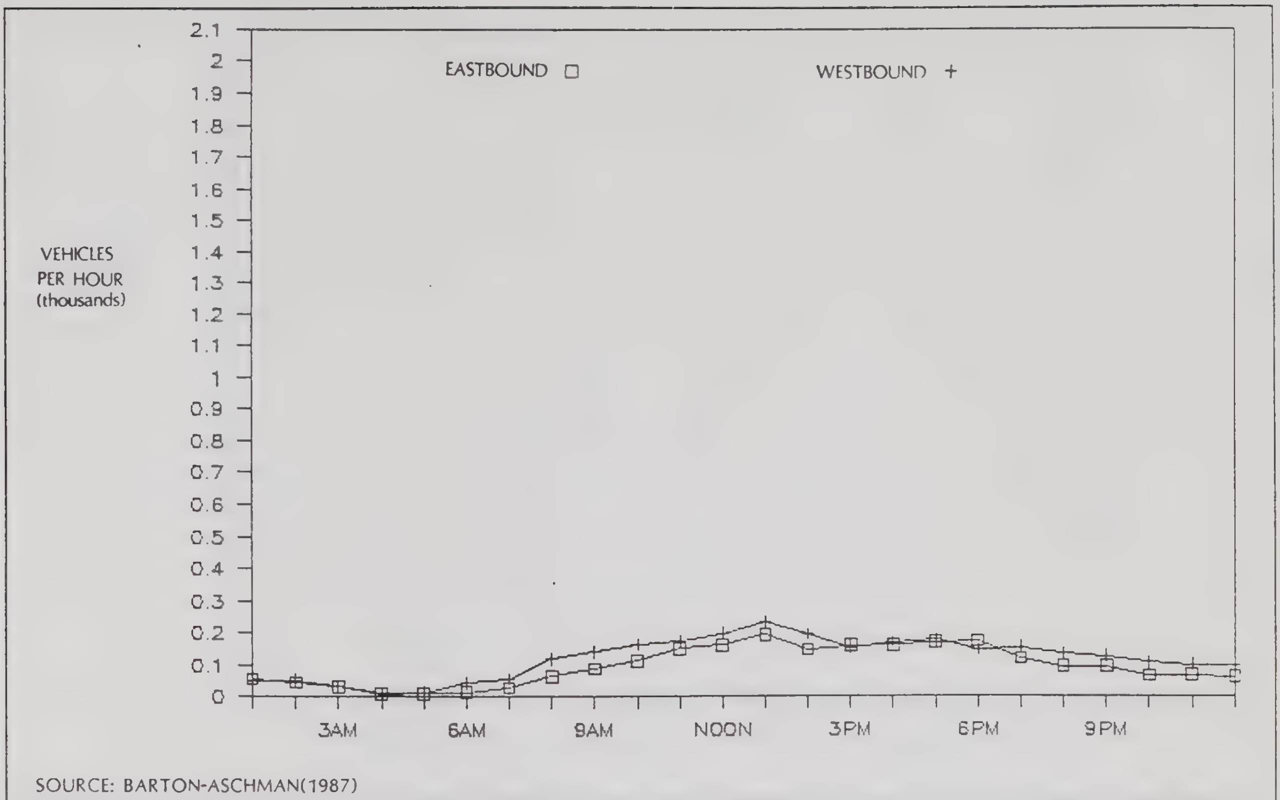
THE ALAMEDA SOUTH OF SHASTA
DAILY TRAFFIC PATTERN SUNDAY 5/10/87

FIGURE A-13



JULIAN EAST OF SOUTHERN PACIFIC OVERPASS
DAILY TRAFFIC PATTERN FRIDAY 5/8/87

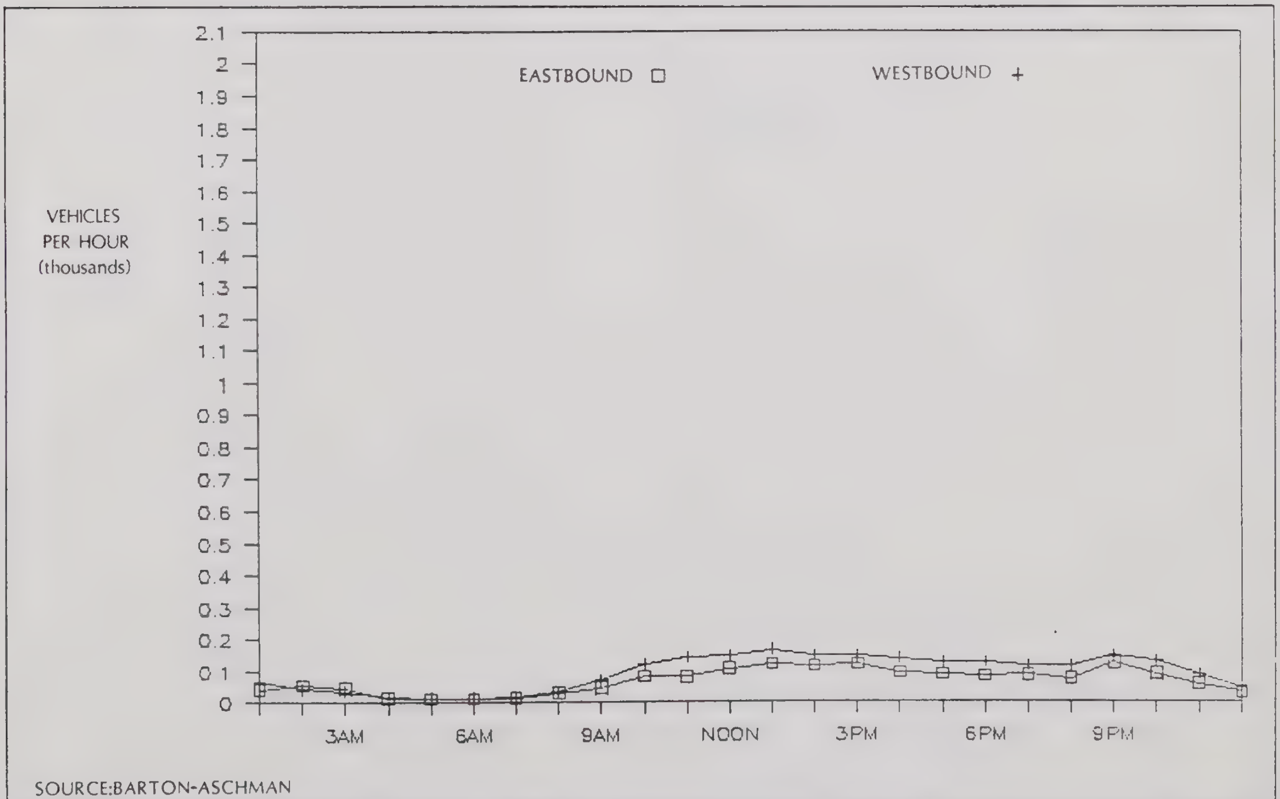
FIGURE A-14



JULIAN EAST OF SOUTHERN PACIFIC OVERPASS

DAILY TRAFFIC PATTERN SATURDAY 5/9/87

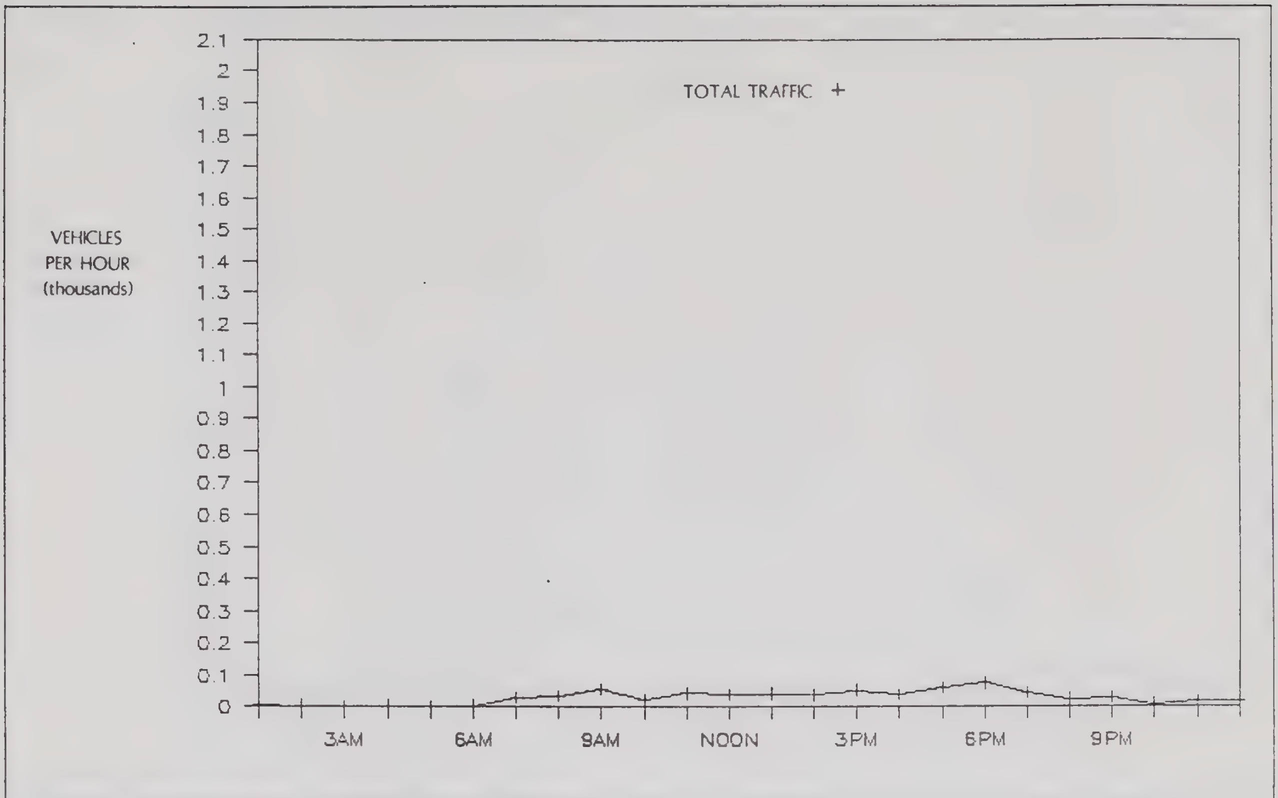
FIGURE A-15



JULIAN EAST OF SOUTHERN PACIFIC OVERPASS

DAILY TRAFFIC PATTERN SUNDAY 5/10/87

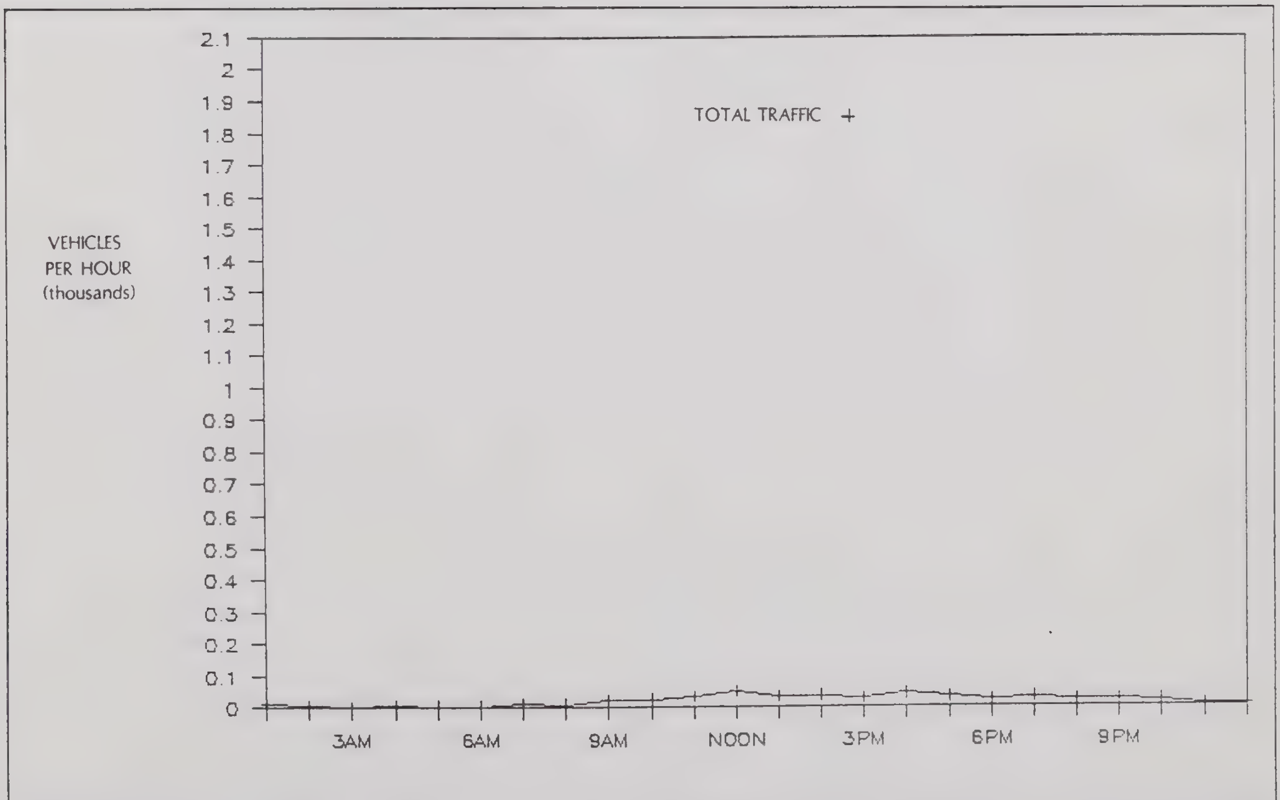
FIGURE A-16



SHASTA WEST OF THE ALAMEDA

DAILY TRAFFIC PATTERN FRIDAY 5/8/87

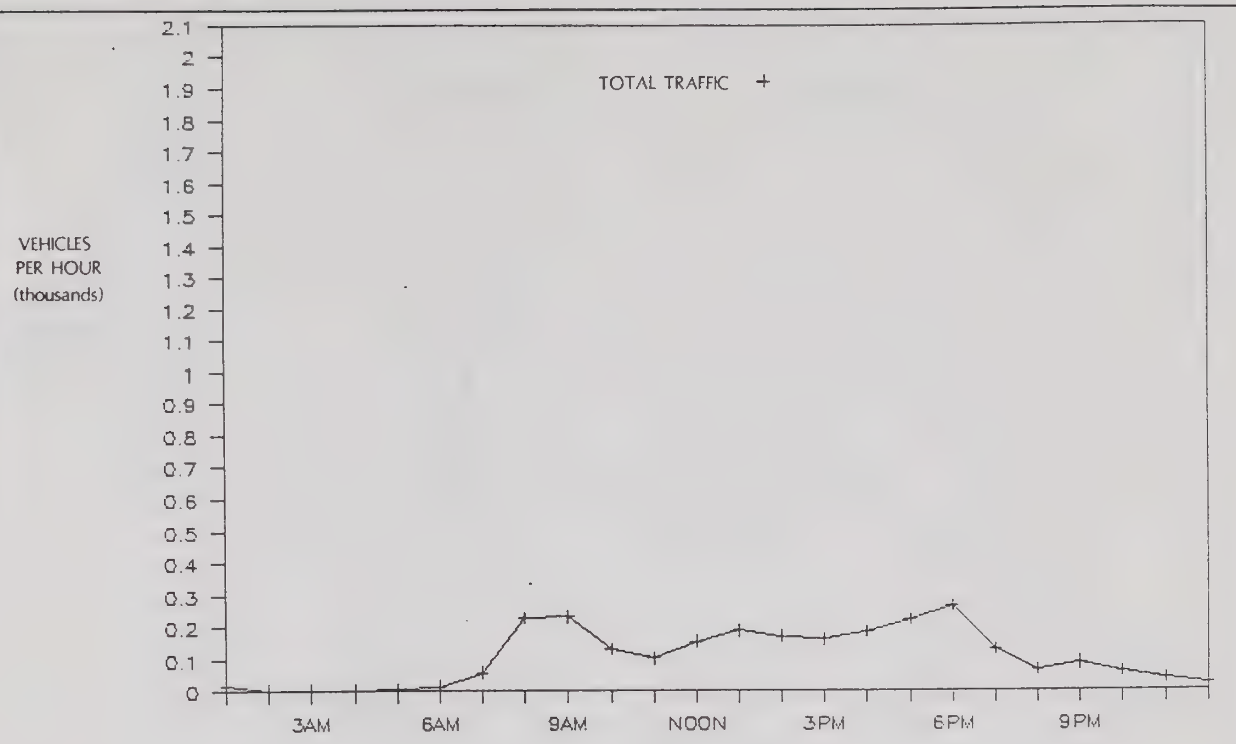
FIGURE A-17



SHASTA WEST OF THE ALAMEDA

DAILY TRAFFIC PATTERN SATURDAY 5/9/87

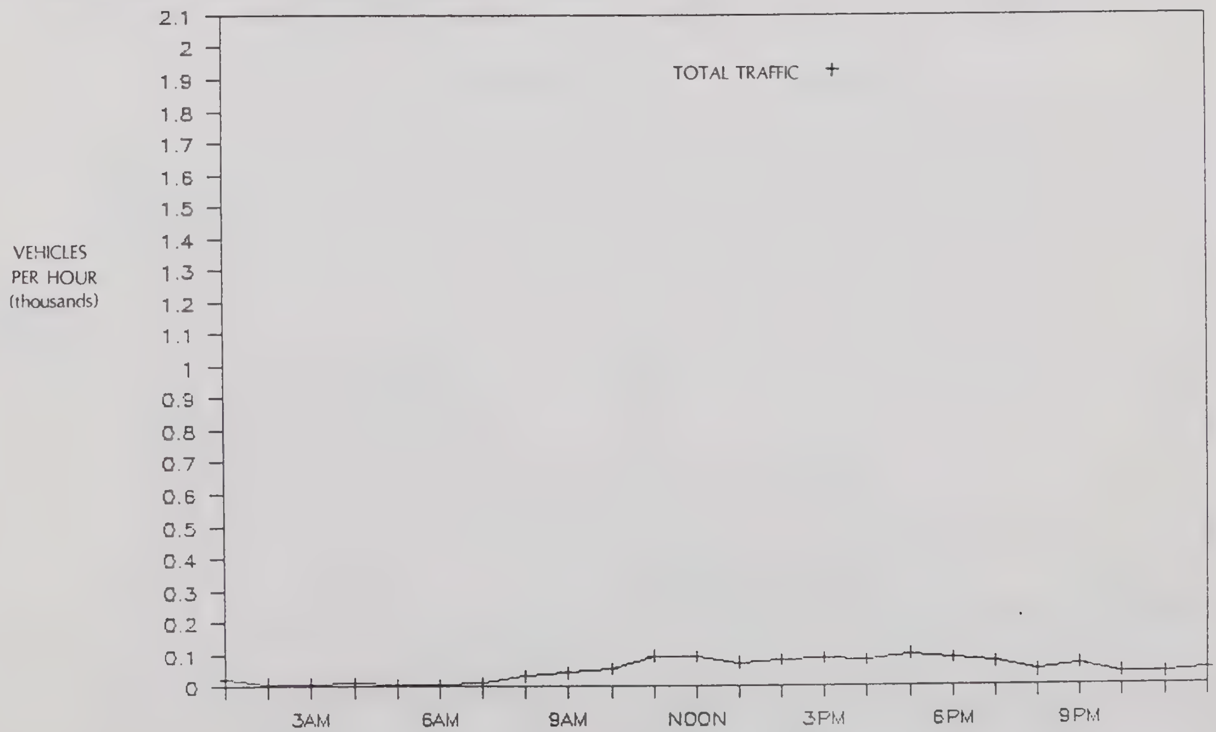
FIGURE A-18



HANCHETT WEST OF THE ALAMEDA

DAILY TRAFFIC PATTERN FRIDAY 5/8/87

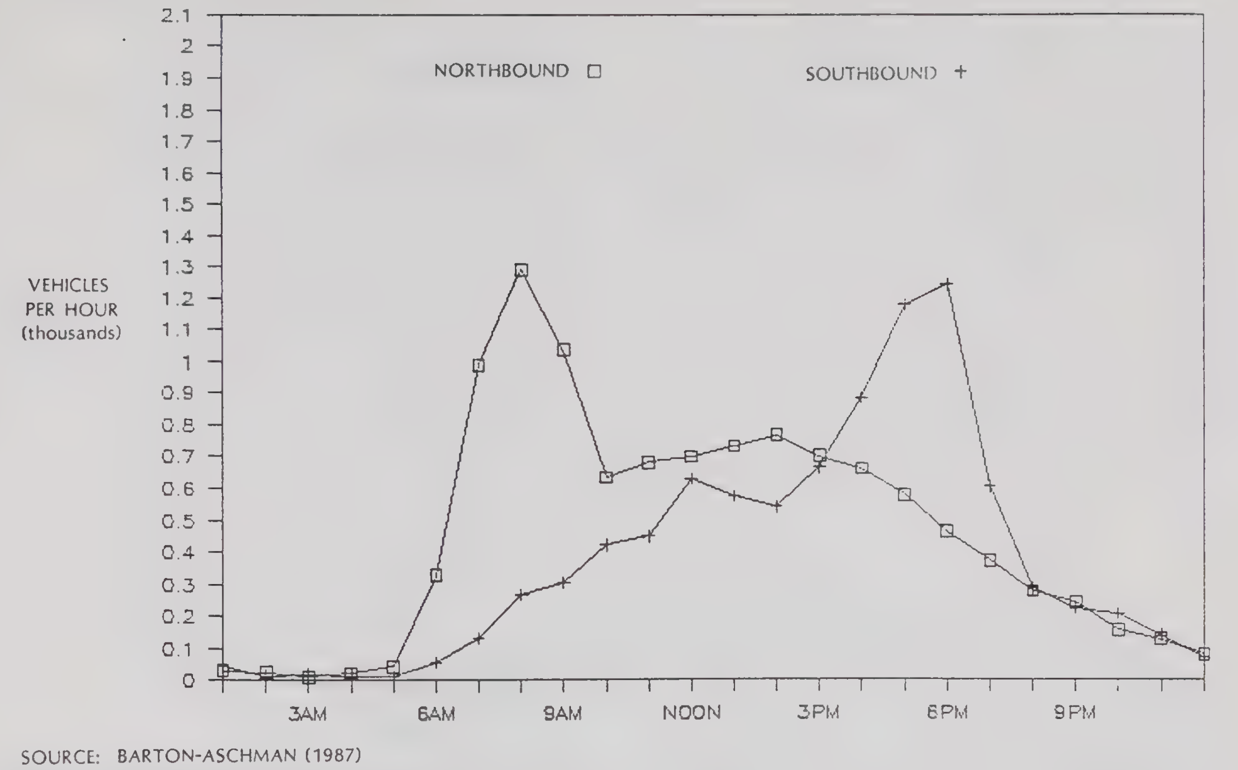
FIGURE A-19



HANCHETT WEST OF THE ALAMEDA

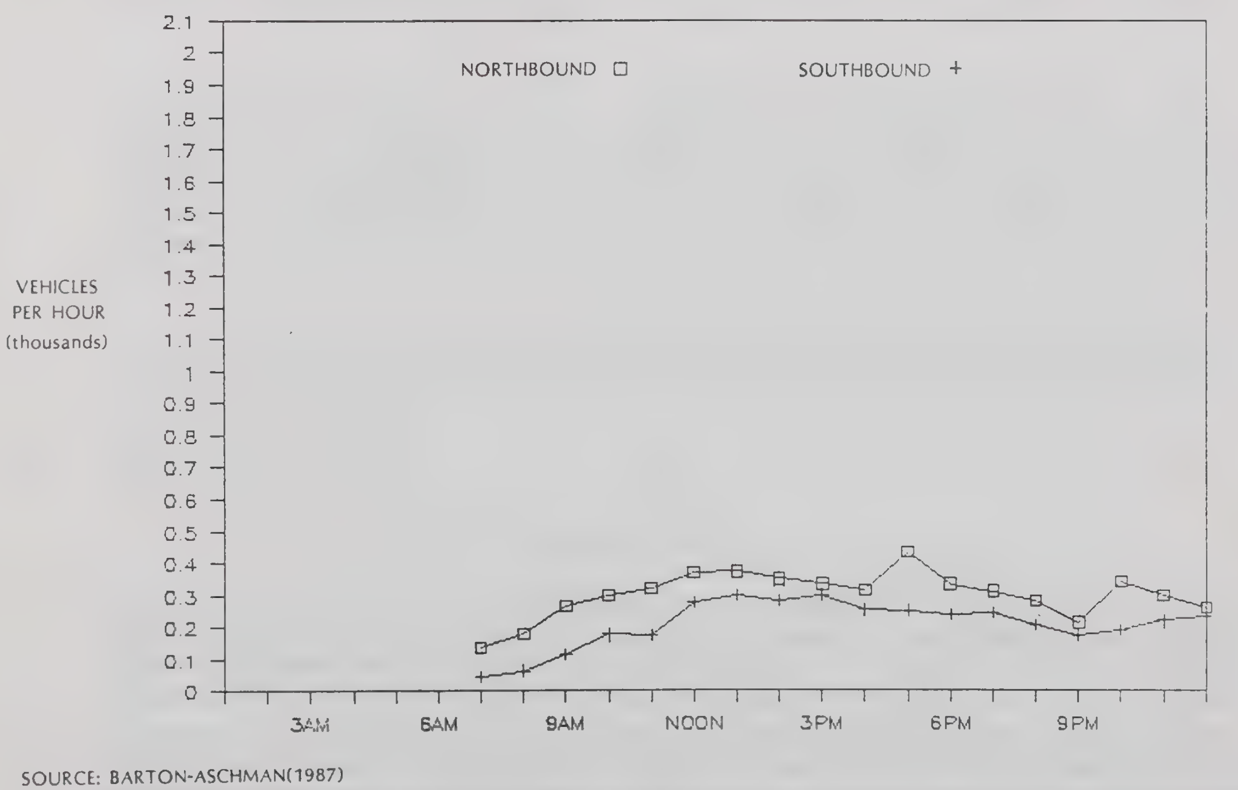
DAILY TRAFFIC PATTERN SATURDAY 5/9/87

FIGURE A-20



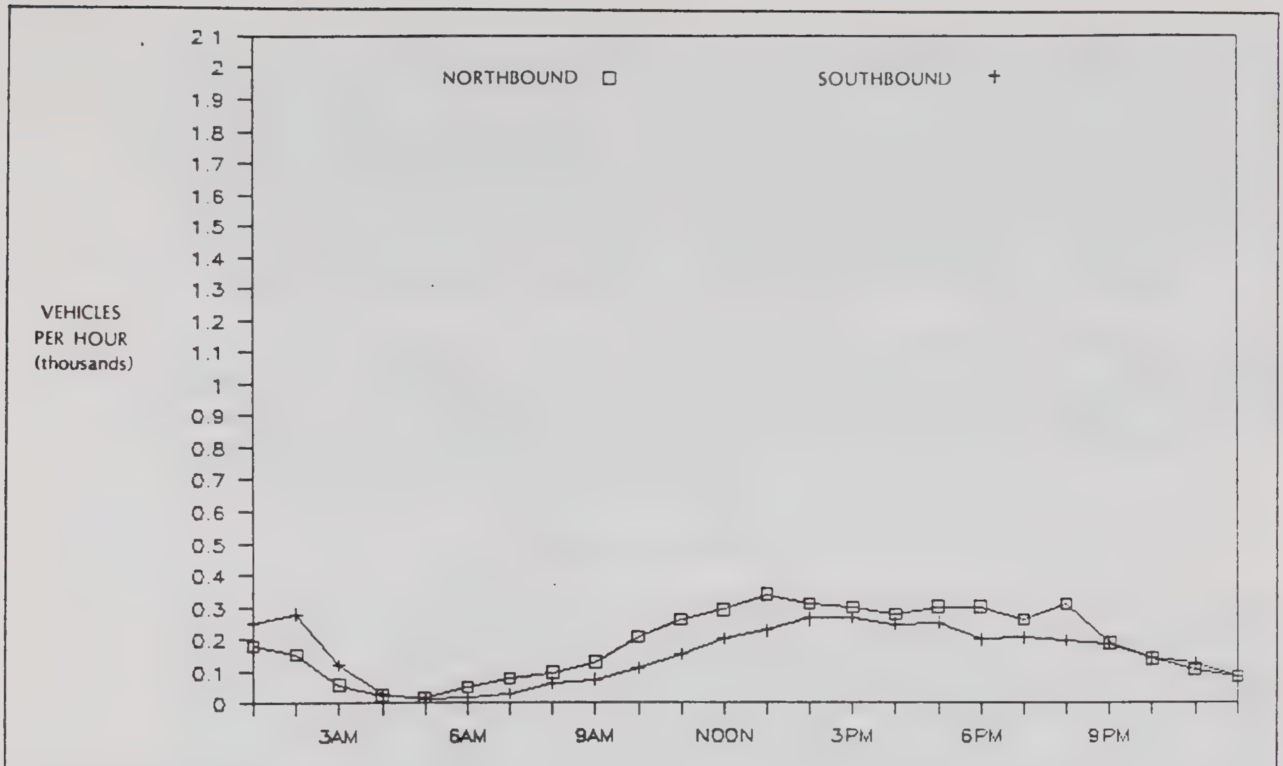
ALMADEN NORTH OF SAN FERNANDO
DAILY TRAFFIC PATTERN MONDAY 6/1/87

FIGURE A-21



DAILY TRAFFIC PATTERN SATURDAY 5/30/87
ALMADEN NORTH OF SAN FERNANDO

FIGURE A-22



SOURCE: BARTON-ASCHMAN (1987)

ALMADEN NORTH OF SAN FERNANDO

DAILY TRAFFIC PATTERN SUNDAY 5/31/87

FIGURE A-23

It should be noted that these graphs clearly reflect the character of the roadway and the function it performs. For example, arterial roadways carry a significant amount of commuter traffic on weekdays during the AM and PM peak periods. These commute patterns are reflected in the high peaks on the graph. The same roadway on Saturday and Sunday has a low, steady traffic flow all day without any peaks.

Similarly, due to the local character of residential roadways, they generally carry low volumes and less commuter trips. The graphs in these cases are flat and do not show high peaks.

4. Transit Services

CalTrain Service

The CalTrain commuter rail system, which operates between San Francisco and San Jose, terminates at the Cahill station (located just south of Santa Clara Street). On weekdays, 27 trains operated from San Francisco to San Jose and 26 trains operate from San Jose to San Francisco. The weekday service runs between 5:00 AM and 10:00 PM for both the northbound and southbound directions. On Saturdays, 12 trains operate in each direction; on Sundays, nine trains provide service. The majority of the trains stop at all of the existing 27 stations along the peninsula to pickup and discharge passengers.

As a result of its close proximity to the project site, the Cahill Station offers an excellent opportunity to provide service for the arena patrons to and from the peninsula cities. Also, during events, if demand dictates, it is possible to provide a special train service similar to the one now provided for events at the Stanford Stadium. Without major changes to the existing services, it was estimated that five percent of the arena patrons from the peninsula market area would use CalTrain service. For the 17,500 and 20,000 attendance levels, this would amount to 1.6 percent of the arena patrons using the CalTrain service.

Studies are currently underway to investigate extending Bay Area Rapid Transit (BART) to the South Bay Area. Although these studies are in the preliminary stages, it is likely that BART will be extended to San Jose. The Cahill Station is a strong candidate for a BART station. However, for the traffic analysis, BART usage by arena patrons was not assumed.

Light Rail Service

The Guadalupe Light Rail Transit System (LRT) line is currently under construction. This LRT line will connect downtown San Jose with South San Jose and the City of Santa Clara. Several LRT stations are proposed in the downtown transit mall area. The potential connection of the Guadalupe LRT line with the Cahill CalTrain Station is currently being studied. Such a connection would attract a larger number of transit patrons via the LRT service from South San Jose to the project site. For the traffic analysis in this document, LRT usage by arena patrons was not assumed.

5. <u>Roadway System Improvements</u>

Major transportation improvements are planned for the area serving the project site. The State Route 87/Guadalupe Parkway construction through downtown San Jose is the major roadway improvement project currently underway, and is anticipated for completion by late 1988. As part of this construction project, State Route 87 will be extended as a freeway between Interstate 280 and West Taylor Street. According to the design plans, a northbound on-ramp and a southbound off-ramp will be constructed at Park Avenue. A northbound off-ramp will be constructed at West Santa Clara Street. A complete interchange will be constructed between State Route 87 and Julian Street. Also, a northbound on-ramp and a southbound off-ramp have been constructed at Coleman Avenue. Within the context of the State Route 87 construction project, a new roadway connection will be provided to connect Julian Street with Santa Teresa Street (under existing conditions, the roadways is referred to as North Almaden Boulevard) under State Route 87. Once the freeway and its interchanges are completed, Delmas Avenue will be converted to one-way southbound between Santa Clara Street and Auzerais Avenue, and will connect with a southbound on-ramp to State Route 87.

The construction of State Route 87 will not only add significant roadway capacity for regional connections to the downtown area, but will also enable the construction of 320 parking spaces underneath the structure, south of Santa Clara Street. This parking resource will be very useful for the project site, due to its proximity to the site.

The recently-completed Guadalupe River Park Master Plan recommends a new roadway facility called Riverfront Road to be located westerly of and parallel to

the Guadalupe River, between Coleman Avenue and Santa Clara Street. This is proposed to be a four-lane roadway with signals at Coleman Avenue, Julian Street and Santa Clara Street. This roadway has been adopted into the City of San Jose's General Plan. However, at this time, the project has not been funded and its time of completion is not known. With the completion of Riverfront Road, the existing Montgomery/Autumn Streets one-way couplet would be eliminated, and will be replaced by Riverfront Road. The completion of these roadway improvements were assumed in this traffic analysis (the completion of Riverfront Road was assumed for Year-2000 only).

POTENTIALLY SIGNIFICANT IMPACTS

The Horizon 2000 General Plan Transportation Policy uses level of service criteria to define conformance with the policy. Therefore, for the purpose of General Plan Amendments, the impacts on the levels of service would also apply to the impacts on the Horizon 2000 Transportation Policy.

1. Year-1991 Base Conditions -- Intersection Operations

It is anticipated that 1991 is the year for the opening of the proposed arena facility. Therefore, the traffic analysis was based upon for Year-1991 traffic conditions.

To complete the analysis for the five scenarios studied, existing traffic volumes at the 20 critical intersections were factored by an annual growth rate of 1.2 percent to Year-1991. This growth rate reflects the annual increase in the regional background traffic anticipated between now and 1991. Also, the anticipated traffic volumes from future projects provided by the City of San Jose in the site vicinity which have been approved were added to the factored traffic volumes. This provided the Year-1991 base traffic volumes.

Year-1991 (Base Conditions) Level of Service

The results of the level of service calculations performed for Year-1991 base traffic conditions are summarized in Table A-4. These traffic volumes do not include any project-related traffic. The purpose of analyzing Year-1991 base conditions is to determine the operating level of the studied intersections prior to the addition of the arena-generated traffic for Year-1991. The number of intersections which would operate under unacceptable conditions for each of the time scenarios analyzed are provided below.

- Weekday PM peak hour: 6 intersections;
- Weekday Evening peak hour: None;
- Weekday Late Evening peak hour: None;
- Friday Evening peak hour: 1 intersection; and
- Saturday Evening peak hour: None.

The results indicate that two of the six intersections that would operate under unacceptable conditions are not under signal control. The other four intersections would operate under LOS E or F conditions during the PM peak hour. The remaining intersections would all be operating at LOS D or better for all the time scenarios. In fact, with the exception of one intersection (Julian and San Pedro Streets), all other intersection locations would be operating at LOS A or B

TABLE A-4

1991 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	E	.992	A	.320	A	.149	B	.600		N.A. /c/
Stockton & Taylor	A	.517	A	.122	A	.060	A	.287		N.A.
Coleman & Taylor	D	.842	A	.139	A	.098	A	.294		N.A.
S.R. 87 & Taylor	D	.813	A	.361	A	.137	A	.484		N.A.
S.R. 87 Off-Ramp (SB) & Coleman	A	.779	A	.578	A	.156	A	.514		N.A.
San Pedro & Julian	E/d/		C		A		E		A	
Market & Julian	E	.942	A	.430	A	.196	A	.449	A	.314
Alameda & Julian/Hanchett	D	.838	A	.310	A	.154	A	.459	A	.283
Stockton & Julian	F	1.118	A	.285	A	.200	A	.549	A	.253
Montgomery & Julian	C	.716	A	.159	A	.078	A	.375		
S.R. 87 On-Ramp (SB) & Julian	A	.344	A	.217	A	.088	A	.266	A	.139
S.R. 87 On-Ramp (NB)/Notre Dame & Julian	C	.707	A	.352	A	.076	A	.262	A	.145
Alameda/Race & Martin	D	.840	A	.290	A	.136	A	.425	A	.237
Stockton & Alameda	F/d/		A		A		A			N.A.
Cahill & Alameda	C	.709	A	.269	A	.129	A	.344		N.A.
Montgomery & Alameda	A	.583	A	.261	A	.140	A	.346	A	.248
Autumn & Santa Clara	A	.376	A	.154	A	.087	A	.222	A	.126
S.R. 87 Off-Ramp (NB) & Santa Clara	A	.431	A	.206	A	.095	A	.267	A	.139
Santa Teresa (N. Almaden) & Santa Clara	E	.976	A	.337	A	.212	A	.515	A	.288
Notre Dame & Santa Clara	C	.733	A	.272	A	.165	A	.461	A	.265

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

during the evening peak hours. This indicates ample spare capacity will be available to serve arena project traffic during those times. Therefore, six intersections would be considered to have a significant impact for Year-1991 (base conditions) during the weekday PM peak hour.

2. <u>Year-1991 Base Plus Project Conditions</u>

In this study, the analyses was conducted for two different seating capacities: 17,500 seats and 20,000 seats. For both cases, maximum attendance was assumed.

Trip Generation

The arena trip generation estimates for each of the two seating capacities are given in Table A-5. These numbers are based on the following assumptions.

- Estimated Transit use: two percent by buses, five percent of peninsula residents (1.6 percent of the total arena patrons) by CalTrain;
- An average vehicle occupancy of 3.0 persons per car;
- The arena events would start at 6:00 PM and/or 7:30 PM;
- For a 7:30 PM start time, approximately four percent of the patrons would arrive during the PM peak hour and approximately 93 percent of the patrons would arrive between 6:30 and 7:30 PM;
- For a 6:00 PM start time, an estimated 93 percent of the patrons would arrive during the PM peak hour; and,
- An estimated 93 percent of the patrons will leave the arena during the hour immediately after the end of an event.

The traffic analysis is based on the assumption that 96 percent of the arena patrons would arrive by automobile and would park at the available parking facilities within an acceptable walking distance (1,500 to 2,000 feet) from the project site (refer to Section D, Pedestrian and Neighborhood Analysis).

3. <u>Automobile Trip Distribution and Assignment</u>

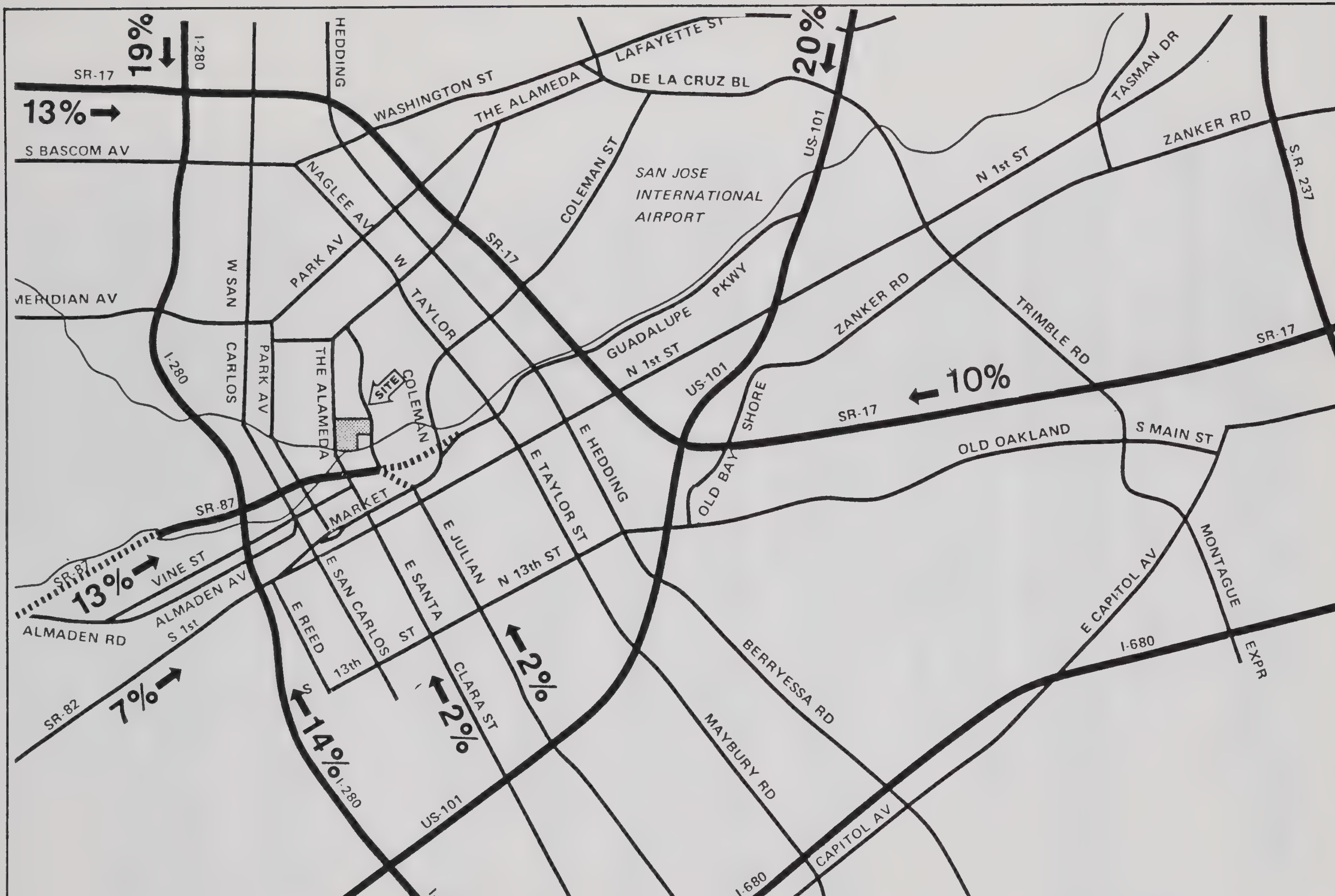
Year-1995 projected population statistics for the South Bay Area were used to determine the market area for the arena sites. Economic Research Associates provided the projected population for each of the geographic segments of the market area. The population information was extracted from the projections produced by the Association of Bay Area Governments (ABAG). The automobile trip distribution was based on the percentages shown on Figure A-24, which gives the percentage of the total arena trips estimated to use each of the regional facilities. The majority of the arena patrons are expected to use regional freeway facilities for obtaining access to the project area. However, in this study, it was assumed that some traffic would use the local facilities. An estimated one percent of the project traffic was assigned on Hanchett Avenue, two percent on Naglee Avenue, one percent on Race Street, two percent on Julian/St. James Streets, two percent on Santa Clara Street, five percent on The Alameda, seven percent on Coleman Avenue, five percent on Market Street and seven percent on Autumn/Montgomery Streets.

The estimated automobile trips were distributed and assigned to the regional and local roadways approaching the proposed arena site. The trip assignments on the roadway system in the vicinity of the site were based on the parking facility locations and their walking distances to the project site. The details of this

TABLE A-5

TRIP GENERATION FOR ARENA

Site	Average Peak Attendance	Transit (Person Trips)	Automobile (Vehicle Trips)
A	17,500	625	5,620
A	20,000	710	6,430



DIRECTIONS OF APPROACH FOR PROJECT SITE

FIGURE A-24

procedure are outlined in Section C, Parking Analysis, of this document. The resulting PM peak, evening peak and late evening peak hour traffic assignments were used to determine the traffic impact of the arena project.

5. Intersection Operations

Year-1991 (With Project) Level of Service

The intersection level of service calculation results for both seating capacities (17,500 seats and 20,000 seats) with maximum attendance are presented in Tables A-6 and A-7. The number of intersections that would operate under unacceptable conditions for both attendance levels are listed below.

- Weekday PM peak hour: 14 intersection (17,500 attendance);
- Weekday PM peak hour: 16 intersections (20,000 attendance);
- Weekday Evening peak hour: 1 intersection;
- Weekday Late Evening peak hour: 3 intersections; and
- Saturday Evening peak hour: 1 intersection.

However, when these results are compared with the results from Year-1991 base conditions (without the arena traffic), it is observed that six intersections would already operate under unacceptable conditions during the PM peak hour and one intersection during the evening peak hours.

According to the City of San Jose's Level of Service policy, the traffic impact of a project at an intersection is considered significant and therefore will require mitigation(s) if either one of the following conditions occur:

- The level of service of an intersection deteriorates from an acceptable level (LOS A, B, C or D) to an unacceptable level (LOS E or F) after the addition of the project traffic.

- For an intersection operating at an unacceptable level of service prior to the addition of the project traffic, the proposed project increases the critical base condition traffic volumes by one-percent or more.

The intersection of Autumn and Santa Clara Streets would conform to the LOS standards. However, the intersection would experience impacts from the project site, circulation and intersection operations because of the right turn movements queueing on roadway segments.

PM Peak Hour

Among the five time scenarios considered, the PM peak hour is the most critical. This condition would occur at most three to five a year, when the arena events are broadcasted to a nation-wide audience.

In this scenario, 93 percent of the arena traffic is projected to arrive at the project site during the peak PM commute hour. For this reason, 14 intersections would operate at LOS E or F for the condition with the maximum attendance of 17,500 persons, and 16 intersections for the condition with a maximum attendance of 20,000 persons. Based on the City of San Jose's Level of Service

TABLE A-6

YEAR 1991 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM LOS/a/	WKDY PM V/C/b/	WKDY EVE. LOS	WKDY EVE. V/C	WKDY LATE EVE. LOS	WKDY LATE EVE. V/C	FRI. EVE. LOS	FRI. EVE. V/C	SAT. EVE. LOS	SAT. EVE. V/C
Alameda & Taylor/Naglee	F	1.068	A	.434	A	.241	B	.600		N.A. /c/
Stockton & Taylor	B	.610	A	.146	A	.083	A	.287		N.A.
Coleman & Taylor	D	.896	A	.207	A	.246	A	.356		N.A.
S.R. 87 & Taylor	F	1.095	B	.635	A	.137	C	.795		N.A.
S.R. 87 Off-Ramp (SB) & Coleman	D	.837	B	.635	A	.219	A	.570		N.A.
San Pedro & Julian	E/d/		B		A		E		B	
Market & Julian	F	1.046	A	.520	A	.247	A	.537	A	.388
Alameda & Julian/Hanchett	E	.918	A	.396	A	.263	A	.552	A	.367
Stockton & Julian	F	1.331	A	.494	A	.308	C	.763	A	.463
Montgomery & Julian	E/e/	.914	A	.490	A	.227	B	.650		N.A.
S.R. 87 Off-Ramp (SB) & Julian	E	.995	C	.712	A	.517	C	.761	B	.643
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	E	.925	A	.364	B	.680	A	.276	A	.364
Alameda/Race & Martin	D	.861	A	.403	A	.163	A	.507	A	.403
Stockton & Alameda	F/d/		B		A		A			N.A.
Cahill & Alameda	E/e/	.934	A	.546	A	.265	B	.620		N.A.
Montgomery & Alameda	F/e/	1.720	E	.968	A	.543	F	1.080	D	.853
Autumn & Santa Clara	B*	.697	A	.392	B	.662	A	.526	A	.423
S.R. 87 Off-Ramp (NB) & Santa Clara	F	1.213	E	.987	A	.343	F	1.021	C	.757
Santa Teresa (N. Almaden) & Santa Clara	F	1.421	C	.778	A	.533	E	.959	C	.730
Notre Dame & Santa Clara	D	.870	B	.618	A	.498	B	.692	A	.538
Autumn & Julian	E	.901	A	.569		N.A.	E	.950		N.A.

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections
/e/ Worst Intersection Level of Service Represented Among all Parking Alternatives

*Autumn and Santa Clara Streets would conform to level of service standards; however, the intersection would experience an impact on site access and intersection operation from right turn movements queing.

TABLE A-7

YEAR 1991 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	F	1.077	A	.452	A	.255	B	.603	N.A. /c/	
Stockton & Taylor	B	.610	A	.146	A	.083	A	.287	N.A.	
Coleman & Taylor	E	.912	A	.226	A	.266	A	.374	N.A.	
S.R. 87 & Taylor	F	1.130	C	.732	A	.137	D	.835	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	D	.813	B	.653	A	.236	A	.587	N.A.	
San Pedro & Julian	E/d/		B		A		E		A	
Market & Julian	F	1.070	A	.543	A	.260	A	.559	A	.412
Alameda & Julian/Hanchett	E	.938	A	.400	A	.279	A	.554	A	.370
Stockton & Julian	F	1.336	A	.499	A	.325	C	.767	A	.467
Montgomery & Julian	E/e/	.933	A	.501	A	.832	B	.664	N.A	
S.R. 87 On-Ramp (SB) & Julian	F	1.081	D	.803	A	.532	D	.853	C	.736
S.R. 87 On-Ramp (NB)/Notre Dame & Julian	E	.925	A	.364	D	.859	A	.441	A	.323
Alameda/Race & Martin	D	.864	A	.535	A	.167	A	.532	A	.400
Stockton & Alameda	F/d/		B		A		A		N.A.	
Cahill & Alameda	E/e/	.953	A	.558	A	.270	B	.630	N.A	
Montgomery & Alameda	F/e/	1.760	E	.988	A	.554	F	1.100	D	.871
Autumn & Santa Clara	B/e/*	.693	A	.401	B	.676	A	.537	A	.432
S.R. 87 Off-Ramp (NB) & Santa Clara	F	1.256	E	.998	A	.343	F	1.059	E	.900
Santa Teresa (N. Almaden) & Santa Clara	F	1.537	D	.898	A	.534	F	1.075	D	.848
Notre Dame & Santa Clara	E	.952	B	.645	A	.503	C	.718	B	.616
Autumn & Julian	E	.930	A	.586	N.A.		E	.983	N.A.	

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections
/e/ Worst Intersection Level of Service Represented Among all Parking Alternatives

*Autumn and Santa Clara Streets would conform to level of service standards; however, the intersection would experience an impact on site access and intersection operation from right turn movements queing.

policy, all of these intersections would be significantly impacted by the proposed arena project and would require mitigation measures, where possible. The intersection of Autumn and Santa Clara Streets would be significantly impacted by the proposed arena facility from site access and circulation.

Evening Peak Hour

In general, the traffic conditions in the site vicinity are worse on a Friday evening than on a typical weekday or Saturday evening. The intersection of State Route 87 northbound off-ramp and Santa Clara Street, which would operate under unacceptable conditions during the weekday and Saturday evening peak hours, is projected to deteriorate even more on Friday evenings. This is because of the increased activity level of the general area during the weekend evenings. The Center for Performing Arts, Montgomery Theater and Civic Auditorium are all located in the vicinity of this intersection, as well as the other signalized intersection (Santa Teresa and Santa Clara Streets), which is projected to operate under unacceptable conditions.

Implementation of the proposed arena facility project wouls have a significant impact on traffic and circulation for the evening peak period.

Late Evening Peak Hour

Due to the relatively low base traffic volumes on the roadways during this time period, the operations of almost all the intersections included in this traffic analysis are well above the minimum acceptable standards, even with 93 percent of the arena traffic leaving the site within the hour after the end of an event. The late evening peak hour would add traffic volumes to the project area at a time that they would not otherwise experience such a volume under the projected Julian-Stockton Redevelopment Plan.

The proposed project would have a less than significant impact on traffic and circulation for the Late Evening peak hour, although the intersection of Autumn and Santa Clara Streets would be significantly impacted from traffic circulation and operation.

6. Year-2000 Base Conditions

The traffic impact analysis for the Year-2000 was conducted to determine the long-term impact of the proposed arena project. An analysis of this type requires a reliable long-range forecast of background data.

The City of San Jose has developed and validated a travel-demand model for the Year-2000. This model was used for forecasting the PM peak hour traffic volumes for the City roadways. This model is known as the HORIZON 2000 TRANPLAN model.

This model is based on the TRANPLAN computer software package, which is commonly used for traffic simulation studies for large urban areas such as the City of San Jose. The City's model is a sophisticated, analytical tool with more than 600 traffic analysis zones and thousands of network links. It generates, distributes and assigns nearly 500,000 all-purpose, PM peak hour vehicle trips to the roadway system network for the PM peak hour. During the assignment

process, this model accounts for traffic congestion by assigning trips so as to minimize travel time on the roadway network, but also takes into consideration the available roadway system capacity. Major planning assumptions built into the model for the Year-2000 include the following:

- Validation of model using Year-1980 census data, MTC '80 Travel Survey Data and 1980 Ground Count Data;
- Year-2000 data generally matched the ABAG 2005 projections;
- Full build-out (Year-2000) of the Julian-Stockton Area with 8,000 jobs;
- Full build-out of North San Jose by Year 2000;
- Completion of the following transportation system projects;
  - Construction of State Route 87 as a freeway from South San Jose to of Taylor Street and from Hedding Street to U.S. Highway 101;
  - Expansion of Interstate 280 to eight lanes from Interstate 880 to Magdalena Avenue;
  - Widening of Interstate 880 to six lanes north of U.S. Highway 101;
  - Modification of State Route 237 to an eight lane (six lanes plus two auxiliary lanes)freeway;
  - Build-out of the General Plan Major Thoroughfare network;
  - Construction of Riverfront Road between Coleman Avenue and Santa Clara Street; and
- Increased diversion to transit and carpools, with an expanded County-wide HOV lane program, which includes Interstate 280, U.S. Highway 101, State Route 237, San Tomas Expressway, Capital Expressway, Montague Expressway, Lawrence Expressway and the Central Expressway.

The City's traffic model was utilized for estimating the Year-2000 base traffic volumes in the vicinity of the project site. The model run which were used assumed that the Julian-Stockton Redevelopment Area would be redeveloped with Research and Development, professional office and other land uses. This model run assumed no development on the project site.

Different factors were applied to the PM peak hour traffic volumes produced by the City's model for projections of traffic volumes during the other periods under study. These peak hour factors were developed from the 24 hour machine counts taken along various roadway facilities in the project area.

6. <u>Intersection Operation-- Year-2000 (Base Condition) Level of Service</u>

The projected operation of the intersections in the vicinity of the project site is described in Table A-8.

The number of intersections that would operate under unacceptable conditions for each of the time scenarios analyzed are as follows:

- Weekday PM peak hour: 4 intersections;
- Weekday Evening peak hour: 1 intersection;
- Weekday Late Evening peak hour: None;
- Friday Evening peak hour: 1 intersection; and
- Saturday Evening peak hour: None.

TABLE A-8

YEAR 2000 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	C	.752	A	.495	A	.183	A	.485	N.A. /c/	
Stockton & Taylor	A	.599	A	.424	A	.198	A	.440	N.A.	
Coleman & Taylor	D	.873	A	.574	A	.268	A	.574	N.A.	
S.R. 87 & Taylor	F	2.139	F	1.633	A	.582	F	1.424	N.A.	
River Front & Coleman	A	.491	A	.327	A	.156	A	.327	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	A	.381	A	.321	A	.150	A	.253	N.A.	
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	C	.737	A	.468	A	.211	A	.468	A	.283
Alameda & Julian/Hanchett	E	.972	A	.522	A	.204	A	.541	A	.292
Stockton & Julian	D	.829	A	.317	A	.126	A	.384	A	.196
River Front & Julian	F	1.168	A	.531	A	.174	B	.614	N.A.	
S.R. 87 On-Ramp (SB) & Julian	B	.668	A	.366	A	.162	A	.423	A	.227
S.R. 87 On-Ramp (NB)/Notre Dame & Julian	A	.553	A	.348	A	.152	A	.358	A	.203
Alameda/Race & Martin	A	.096	A	.061	A	.028	A	.061	A	.037
Stockton & Alameda	A	.525	A	.309	A	.132	A	.342	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	A	.514	A	.311	A	.150	A	.351	N.A.	
River Front & Santa Clara	C	.724	A	.448	A	.214	A	.488	A	.293
S.R. 87 Off-Ramp (NB) & Santa Clara	A	.386	A	.234	A	.114	A	.265	A	.157
Santa Teresa (N. of Almaden)& Santa Clara	F	1.104	B	.656	A	.301	C	.750	A	.416
Notre Dame & Santa Clara	B	.622	A	.385	A	.171	A	.441	A	.230

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed

PM Peak Hour

By Year-2000, even without the arena project, the intersection of State Route 87 and Taylor Street would operate at a LOS F (with a V/C ratio = 2.1). This intersection would require major modifications for an effective and acceptable level of operation.

The other three intersections projected to operate under unacceptable conditions are:

- The Alameda and Julian/Hanchett Streets;
- Riverfront Road and Julian Street; and
- Santa Teresa and Santa Clara Streets.

Therefore, four intersections would be significantly impacted under base conditions for the PM peak hour for the Year-2000.

7. <u>Intersection Operations -- Year-2000 Base Plus Project Level of Service (Cumulative)</u>

The intersection level of service calculation results for both seating capacities, with maximum attendance, are presented in Tables A-9 and A-10.

The number of intersections which would operate under unacceptable conditions are as follows:

- Weekday PM peak hour: 10 intersections (17,500 attendance);
- Weekday PM peak hour: 11 intersections (20,000 attendance);
- Weekday Evening peak hour: 3 intersections;
- Weekday Late Evening peak hour: None;
- Friday Evening peak hour: 3 intersections;
- Saturday Evening peak hour: None (17,500 attendance level); and
- Saturday Evening peak our: 2 intersections (20,000 attendance level).

When these results are compared with the results from Year-2000 base conditions (without the arena project), it is observed that four intersections would already operate under unacceptable conditions during the PM peak hour and one intersection during the evening peak hours prior to the addition of the arena traffic through these intersections. The remaining intersections would deteriorate to LOS E or F conditions with the addition of the arena traffic.

PM Peak Hour

Up to 11 intersections (only 10 intersections for the 17,500 attendance level) would operate at LOS E or F during the PM peak hour. For all 10 intersections, the impact of the arena traffic on the base conditions are considered significant by the City of San Jose's Level of Service policy.

Evening Peak Hour

The intersection of State Route 87 and Taylor Street would require modifications, with or without the arena project, to improve not only its PM peak hour operation, but also its evening peak hour operations.

TABLE A-9

YEAR 2000 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	C	.791	A	.598	A	.295	A	.588	N.A. /c/	
Stockton & Taylor	B	.664	A	.424	A	.186	A	.440	N.A.	
Coleman & Taylor	E	.984	B	.692	A	.291	B	.692	N.A.	
S.R. 87 & Taylor	F	2.104	F	1.628	A	.582	F	1.628	N.A.	
River Front & Coleman	C	.714	A	.539	A	.336	A	.539	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	A	.381	A	.253	A	.120	A	.253	N.A.	
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	C	.762	A	.495	A	.211	A	.495	A	.310
Alameda & Julian/Hanchett	F	1.055	B	.678	A	.322	B	.698	A	.407
Stockton & Julian	E	.926	A	.520	A	.251	B	.607	A	.361
River Front & Julian	F	1.505	D	.808	C	.792	E	.908	B	.622
S.R. 87 Off-Ramp (SB) & Julian	E	.932	B	.621	B	.648	B	.677	A	.586
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	C	.776	A	.348	D	.801	A	.358	A	.318
Alameda/Race & Martin	B	.584	A	.431	A	.148	A	.423	A	.282
Stockton & Alameda	B	.624	A	.410	A	.221	A	.442	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	F	1.190	E	.959	A	.492	F	1.006	D	.867
River Front & Santa Clara	F	1.197	E	.942	A	.597	E	.960	C	.772
S.R. Off-Ramp (NB) & Santa Clara	F	1.107	E	.962	A	.374	E	.987	D	.897
Santa Teresa (N. Almaden) & Santa Clara	F	1.559	F	1.170	B	.661	F	1.265	D	.870
Notre Dame & Santa Clara	D	.874	B	.689	A	.512	C	.749	A	.471

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Intersection Level of Service Represented

TABLE A-10

YEAR 2000 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	C	.795	B	.613	A	.308	B	.606	N.A.	
Stockton & Taylor	B	.667	A	.426	A	.188	A	.443	N.A.	
Coleman & Taylor	F	1.000	C	.709	A	.309	C	.709	N.A.	
S.R. 87 & Taylor	F	2.101	F	1.639	A	.582	F	1.639	N.A.	
River Front & Coleman	C	.714	A	.539	A	.365	A	.539	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	A	.381	A	.253	A	.120	A	.253	N.A.	
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	C	.767	A	.499	A	.211	A	.499	A	.314
Alameda & Julian/Hanchett	F	1.077	B	.699	A	.336	C	.718	A	.428
Stockton & Julian	E	.930	A	.521	A	.269	B	.611	A	.364
River Front & Julian	F	1.536	D	.825	D	.809	E	.927	B	.630
S.R. 87 Off-Ramp (SB) & Julian	F	1.028	C	.798	B	.648	C	.798	B	.672
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	C	.776	A	.530	D	.892	A	.541	A	.356
Alameda/Race & Martin	B	.609	A	.456	A	.152	A	.448	A	.307
Stockton & Alameda	B	.646	A	.433	A	.237	A	.465	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	F/d/	1.219	E	.979	A/d/	.503	F	1.027	D	.885
River Front & Santa Clara	F/d/	1.222	E	.962	B/d/	.609	E	.980	C	.788
S.R. Off-Ramp (NB) & Santa Clara	F	1.152	F	1.028	A	.530	F	1.052	E	.965
Santa Teresa (N. Almaden) & Santa Clara	F	1.724	F	1.273	B	.671	F	1.369	F	1.031
Notre Dame & Santa Clara	E	.958	C	.702	A	.517	C	.759	A	.548

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Intersection Level of Service Represented

The two other intersections which would operate under LOS F conditions are:

- State Route 87 Northbound off-ramp and Santa Clara Street; and
- Santa Teresa and Santa Clara Streets.

The impact of the arena facility traffic on the base conditions (for Year-2000) would be considered significant for the intersection of Santa Teresa and Santa Clara Streets, as defined by the City of San Jose Level of Service policy.

MITIGATION MEASURES

The following are roadway improvement mitigation measures that are either proposed to be included in the project or others that are not included but could reasonably be expected to reduce the identified significant adverse traffic and circulation impacts. These roadway improvements would mitigate impacts that occur within one or more of the 24 scenarios for which traffic impacts were analyzed, as shown in Table A-11 and A-12(Matrix of Impacted Intersections for the 24 Analyzed Traffic Scenarios).

Mitigation measures would be needed at all 17 intersections for impacts resulting from an arena event beginning at 6:00 PM with a 20,000 attendance level (i.e., a nationally televised NBA play-off game). This type of event with a 6:00 PM starting time is expected to occur very infrequently, approximately two to five times per year. Other starting times, as reflected in Table A-11 and Table A-12, would not create as significant impacts on the existing intersections. The required roadway related improvements for Year-1991 and Year-2000 are outlined below, except for two intersections where mitigation was impracticable.

1. Intersection of The Alameda and Taylor/Naglee Streets **(Included in Project)**

   Under projected Year-1991 base conditions, this intersection would operate at LOS E (V/C = 0.992). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.077) for the maximum attendance level.

   Under existing conditions, there exists two through lanes in both the northbound and southbound directions. It is recommended that the intersection be restriped and reconstructed to provide an additional lane in both directions on The Alameda. This would require parking prohibitions on both sides of The Alameda. This would improve the projected LOS to D (V/C = 0.892).

   This mitigation would be for two secenarios in Year-1991 as shown in Table A-11.

2. Intersection of Coleman Avenue and Taylor Street

   This intersection is projected to operate at a level worse than D only for the maximum attendance level of 20,000 persons. For this condition, the intersection would operate at LOS E (V/C = 0.912).

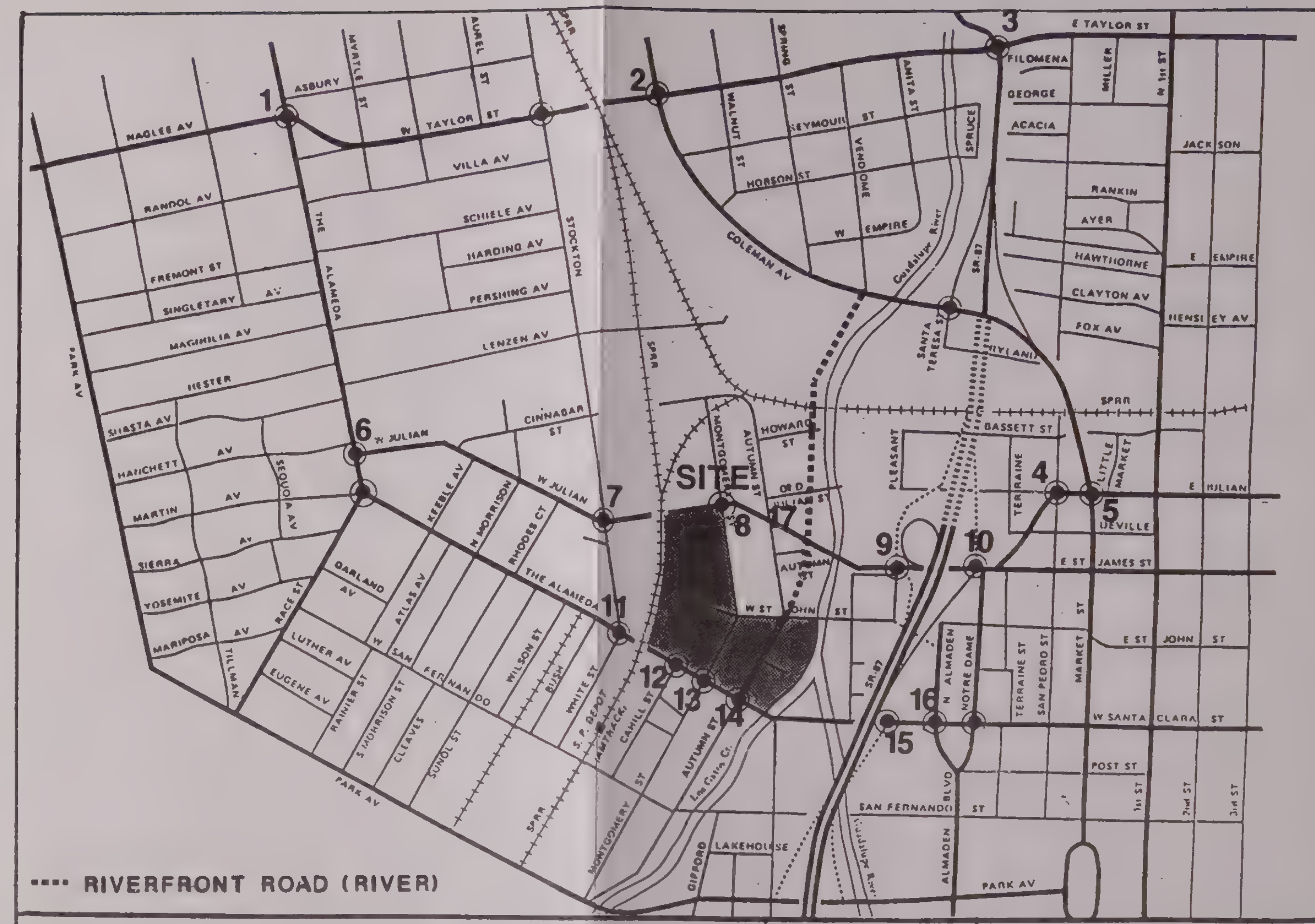
SITE A

TABLE A-11

INTERSECTION	YEAR 1991: 20,000 ATTENDANCE: A (* WEEKDAY PM Pk. Hr. 6:00 PM Event)	B (WEEKDAY PM Pk. Hr. 7:30 PM Event)	C (WEEKDAY EVENING Pk. Hr.)	D (WEEKDAY LATE EVENING Pk. Hr.)	E (FRIDAY EVENING Pk. Hr.)	F (SATURDAY EVENING Pk. Hr.)	17,500 ATTENDANCE: A (* WEEKDAY PM Pk. Hr. 6:00 PM Event)	B (WEEKDAY PM Pk. Hr. 7:30 PM Event)	C (WEEKDAY EVENING Pk. Hr.)	D (WEEKDAY LATE EVENING Pk. Hr.)	E (FRIDAY EVENING Pk. Hr.)	F (SATURDAY EVENING Pk. Hr.)
1. Alameda at Taylor/Naglee	◈						◈					
2. Coleman at Taylor	○											
3. S.R. 87 at Taylor	○						○					
4. San Pedro at Julian	◈	◈			◈		◈	◈			◈	
5. Market at Julian	○						○					
6. Alameda at Julian/Hanchett	◈						◈					
7. Stockton at Julian	○						○					
8. Montgomery at Julian	○	◆	◆	◆	◆	◆	○	◆	◆	◆	◆	◆
9. SR 87 Off-Ramp (SB) at Julian	○						○					
10. SR 87 Off-Ramp (NB)/Notre Dame at Julian	○						○					
11. Stockton at Alameda	◈	◈					◈	◈				
12. Cahill at Alameda	○						○					
13. Montgomery at Alameda	○	○	○	◆	○	◆	○	○	○	◆	○	◆
14. Autumn at Santa Clara	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
15. S.R. 87 Off-Ramp (NB) at Santa Clara	○		○		○	○	○		○		○	
16. Santa Teresa at Santa Clara	◈	◈			◈		◈	◈			◈	
17. Autumn at Julian	○	○	◆	◆	○	◆	○	○	◆	◆	○	◆

* EVENTS TO OCCUR 2-5 TIMES A YEAR

YEAR 1991 MATRIX OF IMPACTED INTERSECTIONS & MITIGATION FOR THE 12 ANALYSED TRAFFIC SCENARIOS



TRAFFIC ANALYSIS INTERSECTION LOCATIONS

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

- **A – Weekday PM Peak Hour with a starting time of 6:00 PM.**
- **B – Weekday PM Peak Hour with a starting time of 7:30 PM.**
- **C – Weekday Evening Peak Hour with a starting time of 7:30 PM.**
- **D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.**
- **E – Friday Evening Peak Hour with a starting time of 7:30 PM.**
- **F – Saturday Evening Peak Hour with a starting time of 7:30 PM.**

LEGEND

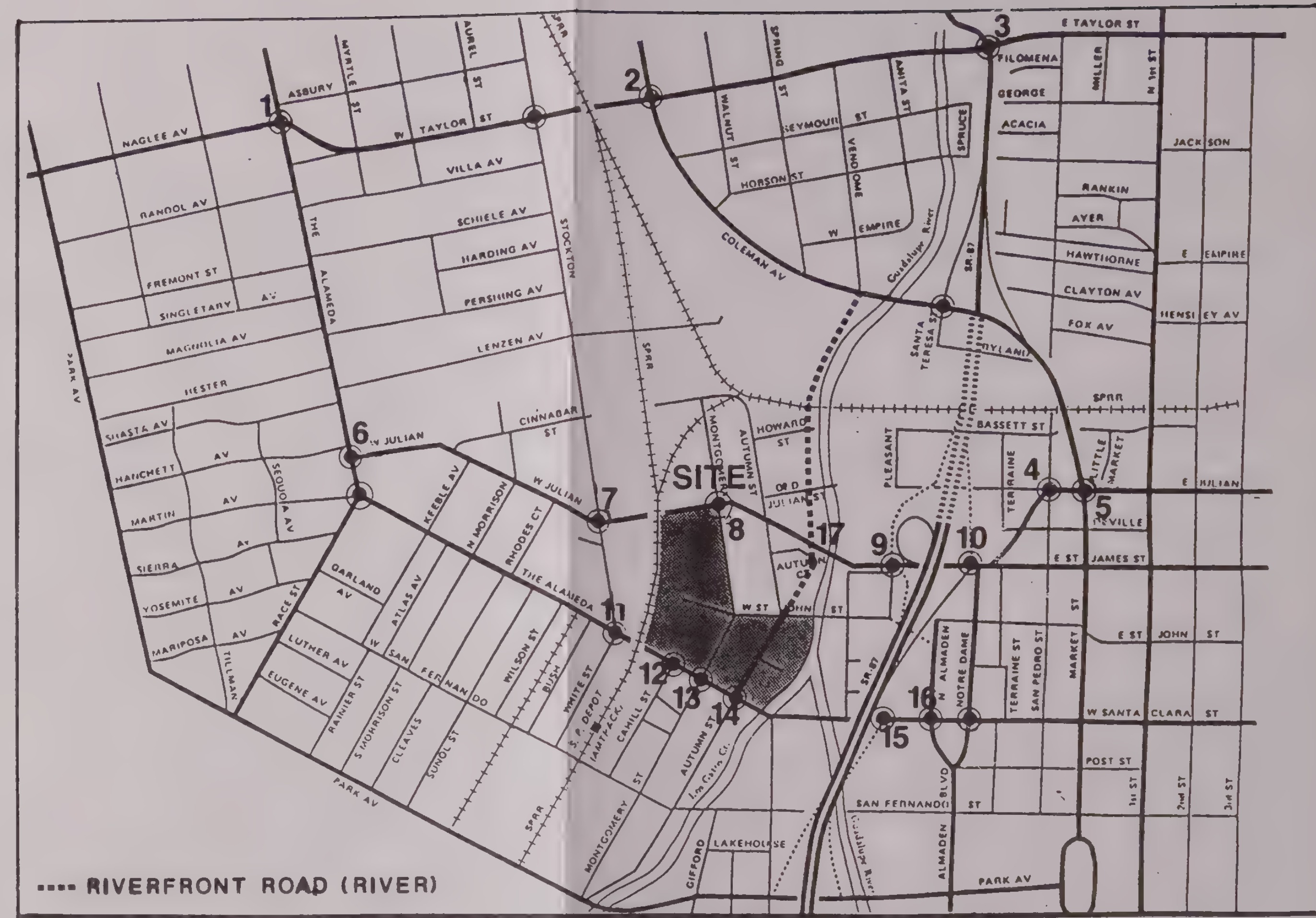
- ○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)
- ◈ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT
- △ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA
- ◆ IMPACT ON SITE ACCESS AND INTERSECTION OPERATION (NOT LEVEL OF SERVICE)

SITE A
TABLE A-12

INTERSECTION	YEAR 2000 — 20,000 ATTENDANCE A: * WEEKDAY PM Pk. Hr. 6:00 PM Event	B: WEEKDAY PM Pk. Hr. 7:30 PM Event	C: WEEKDAY EVENING Pk. Hr.	D: WEEKDAY LATE EVENING Pk. Hr.	E: FRIDAY EVENING Pk. Hr.	F: SATURDAY EVENING Pk. Hr.	YEAR 2000 — 17,500 ATTENDANCE A: * WEEKDAY PM Pk. Hr. 6:00 PM Event	B: WEEKDAY PM Pk. Hr. 7:30 PM Event	C: WEEKDAY EVENING Pk. Hr.	D: WEEKDAY LATE EVENING Pk. Hr.	E: FRIDAY EVENING Pk. Hr.	F: SATURDAY EVENING Pk. Hr.
1. Alameda at Taylor/Naglee	△											
2. Coleman at Taylor	○						○					
3. S.R. 87 at Taylor	○	○	○		○		○	○	○		○	
4. San Pedro at Julian	△											
5. Market at Julian	△											
6. Alameda at Julian/Hanchett	◇						◇					
7. Stockton at Julian	○						○					
8. Montgomery at Julian	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
9. SR 87 Off-Ramp (SB) at Julian	○						○					
10. SR 87 Off-Ramp (NB)/Notre Dame at Julian	△											
11. Stockton at Alameda	△											
12. Cahill at Alameda	△											
13. Montgomery at Alameda	○	○	○	◆	○	◆	○	○	○	◆	○	◆
14. Riverfront at Santa Clara	○	○	○	◆	○	◆	○	○	○	◆	○	◆
15. S.R. 87 Off-Ramp (NB) at Santa Clara	○		○		○		○		○		○	
16. Santa Teresa at Santa Clara	○	○	○		○	○	○	○	○		○	
17. Riverfront at Julian	○	○	◆	◆	○	◆	○	○	◆	◆	○	◆

* EVENTS TO OCCUR 2-5 TIMES A YEAR

YEAR 2000 MATRIX OF IMPACTED INTERSECTIONS & MITIGATION FOR THE 12 ANALYSED TRAFFIC SCENARIOS



TRAFFIC ANALYSIS INTERSECTION LOCATIONS

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

- A – Weekday PM Peak Hour with a starting time of 6:00 PM.
- B – Weekday PM Peak Hour with a starting time of 7:30 PM.
- C – Weekday Evening Peak Hour with a starting time of 7:30 PM.
- D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.
- E – Friday Evening Peak Hour with a starting time of 7:30 PM.
- F – Saturday Evening Peak Hour with a starting time of 7:30 PM.

LEGEND

- ○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)
- ◇ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT
- △ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA
- ◆ IMPACT ON SITE ACCESS AND INTERSECTION OPERATION (NOT LEVEL OF SERVICE)

Under existing conditions, this intersection is constructed up to its right-of-way limits. No mitigations are proposed for this intersection. This would be a significant and unavoidable impact.

As shown in Tables A-11 and A-12, one scenario in Year-1991 and two scenarios in Year-2000 would be impacted.

3. Intersection of State Route 87 and Taylor Street **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS D (V/C = 0.842). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.130) for the maximum attendance level during PM peak event (3-5 times per year). It is recommended that this intersection be grade-separated with ramps constructed to permit all turning movements. This grade separation would also benefit the regional traffic circulation since State Route 87 is a regional highway serving the greater San Jose area. The intersection would operate at LOS F during three scenarios for the Year-2000 base conditions.

Implementation of this mitigation would reduce the impact to a nonsignificant level.

This mitigation would be for two scenarios in Year-1991 and eight scenarios in Year-2000 with or without the project, as shown in Tables A-11 and A-12.

4. Intersection of San Pedro and Julian Streets **(Included in Project)**

Currently, this intersection is controlled with STOP signs for San Pedro Street traffic. Under existing conditions and Year-1991 PM peak hour traffic conditions, this intersection is and would continue to operate below LOS D if it remains unsignalized.

Due to its downtown location, this intersection is exempted from the City of San Jose's Level of Service policy. Even so, it is recommended that a signal be installed at this intersection. Implementation of this mitigation measure would not only improve the operation of this intersection during the PM peak hour, but also during the evening peak hours.

Without implementation of this mitigation, the impact to this intersection would be significant.

This mitigation would be for six scenarios in Year-1991. For the Year-2000, it was assumed that this intersection would be signalized.

5. Intersection of Market and Julian Streets **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS E (V/C = 0.942). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.070) for the maximum attendance level.

Under existing conditions, this intersection is constructed up to its right-of-way limits. No mitigations are proposed for this intersection. Although this

intersection is located in the downtown area of San Jose and is exempted from the City's Level of Service Policy, the impact to the intersection operation would be significant and unavoidable.

6. Intersection of The Alameda and Julian/Hanchett Streets **(Included in Project)**

Under existing conditions, the Julian and Hanchett Streets legs of this intersection are offset from one another. With the arena traffic included, the operation of this intersection would deteriorate from LOS D (V/C = 0.838) to LOS E (V/C = 0.938).

To improve the operation of this intersection during this time period, it is recommended that a barrier median be constructed on The Alameda across its intersection with Hanchett Street. This barrier median extension would result in additional storage capacity for left-turning vehicles. Implementation of the mitigation measure will restrict the movements on Hanchett Street to include only right-turns into and out of this intersection. In addition, it is recommended that an island be constructed on the Hanchett Street leg. This will assist motorists and provide them with a clear indicator of the permitted movements.

Implementation of this improvement would improve the intersection operation to a LOS C (V/C = 0.773). This would not be a significant impact.

This mitigation would be for two scenarios in Year-1991 and two scenarios in Year-2000, as shown in Tables A-11 and A-12.

7. Intersection of Stockton Avenue and Julian Street **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS F (V/C = 1.118). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.336) at maximum attendance level during the PM peak hour (3-5 times per year).

In order to improve the operation of this intersection during this time period, it would be necessary to reconstruct the intersection to provide the following lane geometrics:

North Approach: An exclusive right-turn lane, and exclusive through lane, a shared through and left-turn lane and an exclusive left-turn lane.

West Approach: A shared through and right-turn lane and a shared through and left-turn lane.

Implementation of these mitigation measures would require land acquisition and the widening of the Julian Street underpass to provide a four-lane cross-section. With these improvements, the projected intersection LOS would improve to LOS D (V/C = 0.826). Implementation of these mitigation measures would reduce this impact to a nonsignificant level. However, there could potentially be significant secondary impacts resulting from capacity at this intersection, since it may increase traffic volumes to the west on Shasta and Hanchett Avenues.

This mitigation would be for two scenarios in Year-1991 and two scenarios in Year-2000, as shown in Tables A-11 and A-12.

8. Intersection of Montgomery and Julian Streets **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS C (V/C = 0.716). With the arena traffic included, the intersection would deteriorate to LOS E (V/C = 0.914).

It is recommended that the westerly approach of this intersection be widened to provide an additional right-turn lane. This proposed mitigation may require some land acquisition. The southerly leg of this intersection would have direct access to the patron parking area for the proposed project site. This roadway segment would need to be modified to accommodate two-directional traffic flow, with some flexibility in terms of lane arrangements during the evenings when arena events are sold out.

In some cases, the impacts on this intersection met the LOS criteria. However, the improvements would still be necessary to provide adequate site access, circulation and intersection operation.

Implementation of this mitigation would reduce this impact to a nonsignificant level.

This mitigation would be for all scenarios in Year-1991 and all scenarios in Year-2000, as shown in Tables A-11 and A-12.

9. Intersection of State Route 87 Off-Ramp (Southbound) and Julian Street **(Not** Presently **Included in Project)**

This intersection is exempted from the City of San Jose's Level of Service policy due to its downtown location. Even so, it is recommended that the southbound approach be widened to provide an additional through lane. This would improve the intersection operation from LOS F (V/C = 1.028) to LOS D (V/C = 0.834). The off-ramp would have adequate storage space to accommodate the projected traffic flows.

Without the implementation of this mitigation, the impact to this intersection would be significant.

This mitigation would be for two scenarios in Year-1991 and for two scenarios in Year-2000, as shown in Tables A-11 and A-12.

10. Intersection of State Route 87 Off-Ramp (Northbound)/Notre Dame and Julian Streets

This intersection is exempted from the City of San Jose's Level of Service policy. With the arena traffic included, this intersection is projected to operate at LOS E (V/C = 0.925). For the three to five times during the year when events start at 6:00 PM, the operation of this intersection would remain below acceptable standards. The maximum back of queue estimated for the off-ramp traffic extends 200 feet southerly of the nose of the off-ramp. There is no feasible mitigation for this intersection.

Although this intersection is located in the downtown area of San Jose and is exempted from the City's Level of Service Policy, the impact to the intersection operation would be significant and unavoidable.

11. Intersection of The Alameda and Stockton Avenue **(Included in Project)**

Currently, Stockton Avenue intersects with The Alameda at an acute angle just west of the Southern Pacific Railroad underpass. The intersection is controlled by a STOP sign for Stockton Avenue traffic. Under existing conditions, this intersection is and would continue to operate below LOS D it it remains unsignalized. Therefore, it is recommended that this intersection be signalized.

Implementation of this mitigation would reduce the impact to a nonsignificant level.

This mitigation would be for two scenarios in Year-1991 as shown in Tables A-11 and A-12. For Year-2000, this intersection was assumed to be signalized.

12. Intersection of Cahill Street and The Alameda **(Not Included in Project)**

In Year-1991 for both the 17,500 and 20,000 attendance levels during PM peak hour, this intersection would operate at LOS E.

After the Cahill CalTrain Station improvements are implemented, this intersection would only permit northbound right-turns for cars. Buses would be allowed to make northbound left-turns. However, this intersection would continue to operate at LOS E. No mitigations are recommended.

This would be a significant and unavoidable impact.

13. Intersection of Montgomery Street and The Alameda **(Not Presently Included in Project)**

This intersection would operate at LOS F (V/C = 1.79) at the maximum attendance level of 20,000 persons. This poor LOS reflects the large number of vehicles projected for the left-turn movement from the east on Santa Clara Street to the south on Montgomery Street.

It is recommended that Autumn Street operate as a two-directional roadway between Julian and San Fernando Streets. In addition, it is recommended that the easterly approach of this intersection be restriped to provide an exclusive left-turn lane, a shared left-turn and through lane, and an exclusive through lane. Also, an additional eastbound though lane should be provided through this intersection.

In some cases, the impacts on this intersection met the LOS criteria. However, the improvements would still be necessary to provide adequate site access, circulation and intersection operation.

This mitigation would be for all scenarios in Year-1991 and for all scenarios in Year-2000, as shown in Tables A-11 and A-12. With these improvements, the impact at this intersection would be reduced to a nonsignificant level.

14. Intersection of Autumn and Santa Clara Streets **(Not Presently Included in Project)**

The results of the analysis indicate that Autumn Street, in its present confguration, would operate under acceptable LOS in all scenarios. However, in

order to provide adequate site access, circulation and intersection operation, the recommended improvements should be implemented.

If Autumn Street operates as a two-directional roadway through this intersection in Year-1991, it is recommended that the intersection have the following lane geometrics:

Northerly Approach: An exclusive right-turn lane, a shared through lane and a left-turn lane.

Easterly Approach: An exclusive right-turn lane, a shared through and right-turn land, an exclusive through lane and an exclusive left turn lane.

Southerly Approach: A shared through and right-turn lane, an exclusive through lane and a shared through and left-turn lane.

Westerly Approach: An exclusive right-turn lane, a shared through and right-turn lane, an exclusive through lane and an exclusive left-turn lane.

With these lane configurations, the intersection would operate at LOS F (V/C = 1.00) for the PM peak hour analysis. It is recommended that the intersection of Autumn and Santa Clara Streets be under police control for the hour after the conclusion of a major arena event.

Although this mitigation would provide for an improved access and circulation, by the City's Level of Service Standard this mitigation would result in a significant impact.

This mitigation would be for all scenarios in Year-1991, as shown in Table A-11.

15. Intersection of State Route 87 Off-Ramp (Northbound) and Santa Clara Street **(Not Presently Included in Project)**

This intersection is exempted from the City of San Jose's Level of Service policy, due to its downtown location. It should be noted that with the arena traffic, the LOS of this intersection at maximum attendance level is projected to be LOS E (V/C = 1.256). During the two or three days of the year when arena events begin at 6:00 PM, serious operational problems with long queues and delays would occur at this intersection, LOS F. The maximum back of queue estimated for the off-ramp traffic extends 200 feet southerly of the nose of the off-ramp.

Although the intersection is located in the downtown area and is exempted from the City of San Jose's Level of Service Policy, the impact to the intersection operation would be significant and unavoidable.

16. Intersection of Santa Teresa and Santa Clara Streets **(Included in Project)**

In Year-1991 for the 17,500 attendance level during weekday PM peak hour and Friday evening peak hours, this intersection would operate at LOS E and F. Also in Year-1991, for 20,000 attendance level during weekday PM peak, weekday and Friday evening peak hours it would operate at LOS E and F.

This intersection is exempted from the City of San Jose's level of service policy due to its downtown location. Even so, the following mitigation measures are recommended:

Westbound: The segment of roadway between Notre Dame and Santa Teresa Streets be restriped to provide an additional westbound through lane.

Eastbound: The segment of roadway between the off-ramp and Terraine be restriped to provide an additional eastbound through lane.

Both of these measures would require on-street parking prohibitions. This would not be a significant impact.

This mitigation would be for seven scenarios in Year-1991 and for nine scenarios in Year-2000, as shown in Tables A-11 and A-12.

17. Intersection of Autumn and Julian Streets **(Not Presently Included in Project)**

In Year-1991 for 17,500 and 20,000 attendance levels during PM peak hours and Friday Evening peak hour, this intersection would operate at LOS E.

In some cases, the impacts on this intersection met the LOS criteria. However, the improvements would still be necessary to provide adequate site access, circulation and intersection operation.

The mitigations for the impact can be achieved by providing an exclusive left-turn lane on the west approach. Autumn Street south of Julian Street should be converted to two-way operation with two lanes in each direction.

Implementation of these mitigation measures would reduce the impact at this intersection to a nonsignificant level.

This mitigation would be for all scenarios for Year-1991, as shown in Table A-11.

18. Intersection of Riverfront Road and Julian Street **(Not Presently Included in Project)**

By the Year-2000, Riverfront Road will be constructed as a new facility which will replace Autumn Street as a part of the Guadalupe River Park Plan. This road is proposed to provide two-way operation on a four-lane facility. A new intersection of Riverfront Road and Julian Street will be constructed as a part of the future plan. In Year-2000 for both the 17,500 and 20,000 attendance levels during PM peak and Friday evening peak hour this intersection would operate at LOS E.

The following lane geometrics would mitigate the impacts:

North Approach: an exclusive left-turn lane, a shared left-turn and through lane and a shared right-turn and through lane.

East Approach: an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane.

South approach: an exclusive left-turn lane, an exclusive through lane, and a shared through and right-turn lane.

West Approach: an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane.

Implementation of these mitigation measures would reduce the impact at this intersection to a nonsignificant level.

This mitigation would be for all scenarios in Year-2000, as shown in Table A-12.

19. Intersection of Riverfront Road and Santa Clara Street **(Not Presently Included in Project)**

The new Riverfront Road will also have an intersection with Santa Clara Street. This facility will be at the same location as the existing Autumn Street.

In the Year-2000 for both the 17,500 and 20,000 attendance levels during weekday PM peak, weekday and Friday evening peak hour, this intersection would operate at LOS E and F.

In order to provide adequate site access, circulation and intersection operation, the following improvements should be implemented in all scenarios.

The traffic impacts can be mitigated by providing an additional lane on the north approach of the existing Autumn Street. The lane configurations at the north approach should provide an exclusive left-turn lane, an exclusive through lane and a shared through and right-turn lane. This lane arrangement would provide a LOS D.

The mitigation at this intersection would reduce this impact to a nonsignificant level.

This mitigation would be for all scenarios in Year-2000, as shown in Table A-12.

20. Intersections of Santa Teresa and Santa Clara Streets and State Route 87 Off-Ramp (Northbound) and Santa Clara Street **(Included in Project)**

Both intersections are exempted from the City of San Jose's Level of Service policy due to their downtown locations. Even so, it is recommended that the roadway segment between the off-ramp and Santa Teresa Street be restriped to provide an additional eastbound and westbound through-lane. This restriping would require parking prohibitions.

Implementation of this mitigation measure would improve the operation of the intersection of Santa Teresa and Santa Clara Streets from LOS F (with V/C = 1.075) to LOS E (with V/C = 0.903).

Without the implementation of this mitigation, the impact to this intersection operation would be significant.

The intersection of State Route 87 northbound off-ramp and Santa Clara Street is

projected to operate at LOS F (with V/C = 1.059). This condition is caused by the heavy arena traffic using this ramp to gain access to the several parking facilities on Santa Clara Street. In reality, the future conditions at this ramp intersection may not be as bad as the numbers suggest. Since the operation of the next State Route 87 off-ramp just north of this one is well obove the minimum standard acceptable, it is likely that the arena patrons intending to use the more convenient off-ramp would opt to use this off-ramp instead. Increased usage of the State Route 87 off-ramp at Julian Street would improve the LOS for the Santa Clara Street off-ramp to LOS C (V/C = 0.777) for the Friday evening peak conditions.

C. PARKING ANALYSIS

EXISTING SETTING

The parking demand characteristics of arenas vary greatly because of the differing type, attendance levels and times of events. Also, the parking needs for arena events are influenced by the mode of arrival, the vehicle occupancy ratio and the average and peak attendance levels.

The proposed arena is planned to accommodate different types of events at various hours of the afternoon and evenings. Each type of event would generate different parking demands. Broad categories of events would include professional and college sports, family shows, concerts and community/convention functions.

1 Existing Parking

A parking inventory and parking usage survey was conducted to assess the existing on-street and off-street available parking and utilization within a walking distance of 3,000 feet of the proposed arena.

On-Street Parking Inventory

A parking inventory of the existing curbside (on-street) parking spaces was conducted in February, 1987, for the study area. In the parking inventory, the current parking restrictions were documented. There are nine different parking restrictions currently imposed on the available curbside spaces within the study area. The number of available parking spaces was identified for the curbs where parking is permitted. There exists a total of 1,598 spaces, as indicated in Table A-13. The on-street parking study area is shown in Figure A-25.

On-Street Usage

A curbside, on-street parking usage survey was conducted on a weekday in the evening period, between 7:30 and 8:30 PM. During the survey, all curbside spaces were observed, and the number of parked cars was counted. This survey provided information regarding the current demand for on-street parking in the evening.

On-street parking was analyzed by dividing the study area into nine zones, as shown in Figure A-25. The on-street utilization is summarized in Table A-13 for the evening period between 7:30 and 8:30 PM.

TABLE A-13

ON-STREET PARKING WEEKDAY EVENING UTILIZATION (7:30 to 8:30 PM)

Parking Zone	On-Street Spaces	Cars Parked	Percent Utilization
I	136	17	13%
II	225	57	25%
III	285	145	50%
IV	146	27	18%
V	200	35	18%
VI	134	23	17%
VII	145	69	48%
VIII	243	149	61%
IX	84	12	14%
TOTAL	1,598	534	33%

ON-STREET PARKING STUDY ZONE BOUNDARIES

FIGURE A-25

According to the parking utilization survey, Parking Zone VIII showed the highest usage of 61 percent. The next highest usage was in Zone III with a 50 percent utilization. Zone V includes the area proposed for the arena. This zone had a low usage of 18 percent.

During the weekday evening period, there is an overall usage of 34 percent, which is not considered to be high. The evening parking is related to the existing land uses, and the highest utilization (61 percent) occurs in the commercial areas offering evening entertainment.

Off-Street Parking Inventory

The off-street parking inventory was conducted to determine the available parking spaces. These include the public and private surface lots and garages within a 3,000 foot walking distance of the project site. Also included in the inventory is the future parking spaces that will be available in the next four to five years as a result of the construction of new buildings. These buildings are either under construction or approved for construction in the next few years.

The inventory listed in Table A-14 shows that there are 6,073 existing off-street parking spaces. The additional 2,391 off-street spaces that are either under construction or approved for construction will bring the total number of off-street spaces to 8,587.

Off-Street Usage

The parking usage survey for the existing parking facilities was conducted for the afternoon peak between 2:00 and 3:00 PM, and the Friday evening peak period between 6:00 and 9:00 PM. The afternoon peak period surveys indicate that the existing garages were over 80 percent utilized by the tenants of the buildings. The Lincoln Property garage was not heavily used because the building was recently completed and is not fully occupied. Table A-15 shows the parking space usage during the evening peak period.

With the exception of the Park Center Plaza II facility, other off-street parking facilities have minimal usage during the evening period. The garage is in close proximity to the Center for Performing Arts. Accordingly, it is over-utilized (107 percent) with a number of vehicles parked illegally.

2. Parking Supply

The parking demand for an arena facility can be satisfied in a number of different ways, depending on the day and the time of the event. Some of the methods to satisfy the arena parking demand include the following:

- Provide parking on the site;
- Use the existing surrounding parking supply that is within an acceptable walking distance or have non-concurrent parking demands; and
- Provide a remote parking area with a shuttle bus operation to the arena facility.

To satisfy the parking demand for the project site, all three of the strategies were adopted. Due to the size of the available parcels, not all parking could

TABLE A-14

OFF-STREET PARKING INVENTORY

Description		Parking Spaces
Existing Facilities		
1.	CalTrain Cahill Station	679
2.	San Jose Water Company	372
3.	Pacific Valley Bank Garage	700
4.	Park Center Plaza II	302
5.	Park Center Plaza III	1,220
6.	Lincoln Property Building Garage	1,300
7.	Market Street Garage	1,500
	Total Number of Existing Spaces	6,073
Facilities Under Construction or Approved for Construction		
1.	Parking Area Under Route 87	320
2.	Boone Fox Building	873
3.	William Wilson Building	715
4.	Herron Building	483
	Total Number of Proposed Spaces	2,391
	GRAND TOTAL	8,464

TABLE A-15

OFF-STREET PARKING USAGE

Garage	Spaces	# of Cars Parked During Evening Peak Period	Percentage Utilization
Park Center Plaza I	1,076	283	26%
Park Center Plaza II	302	322	107%
Park Center Plaza III	1,220	148	12%
Market Street Garage	1,500	185	12%

be accommodated on the project site. It would be necessary to utilize existing parking facilities that are available during the evenings and on weekends that are within an acceptable walking distance.

Research has shown that most persons will accept walking distances ranging up to 1,500 feet between the parking area and the nearest entrance to the arena site, and some persons will accept walks of 2,000 feet or more. A relationship between walking distance and the use of parking facilities by the arena patrons was developed based upon previous experiences at similar arena sites in other cities. A graph showing the relationship between walking distance and the percentage use of a parking facility is shown in Figure 26. This relationship was verified by the results of a study conducted for the acceptance of walking distance to rapid transit stations (Stringham, 1980).

Recent studies have indicated that there is an upper limit to the tolerance of walking distances under North American conditions. However, the trip purpose has some bearing on the length of walking distance between the parking area and the final destination. For example, people going to an arena for recreational purposes are willing to accept longer than usual distances (over 3,000 feet) as compared to shopping trips, which require the carrying of shopping bags, etc. In short, the tolerance of arena patrons has been observed to be high for accepting longer than usual walking distances.

POTENTIALLY SIGNIFICANT IMPACTS

The project site would be designed to provide approximately 35 percent of it required parking on-site for a capacity demand of 17,500 seats, and 31 percent for a capacity demand of 20,000 seats. The remaining 70 percent (approximately) of the parking needs would be away (off-site) from the arena facility.

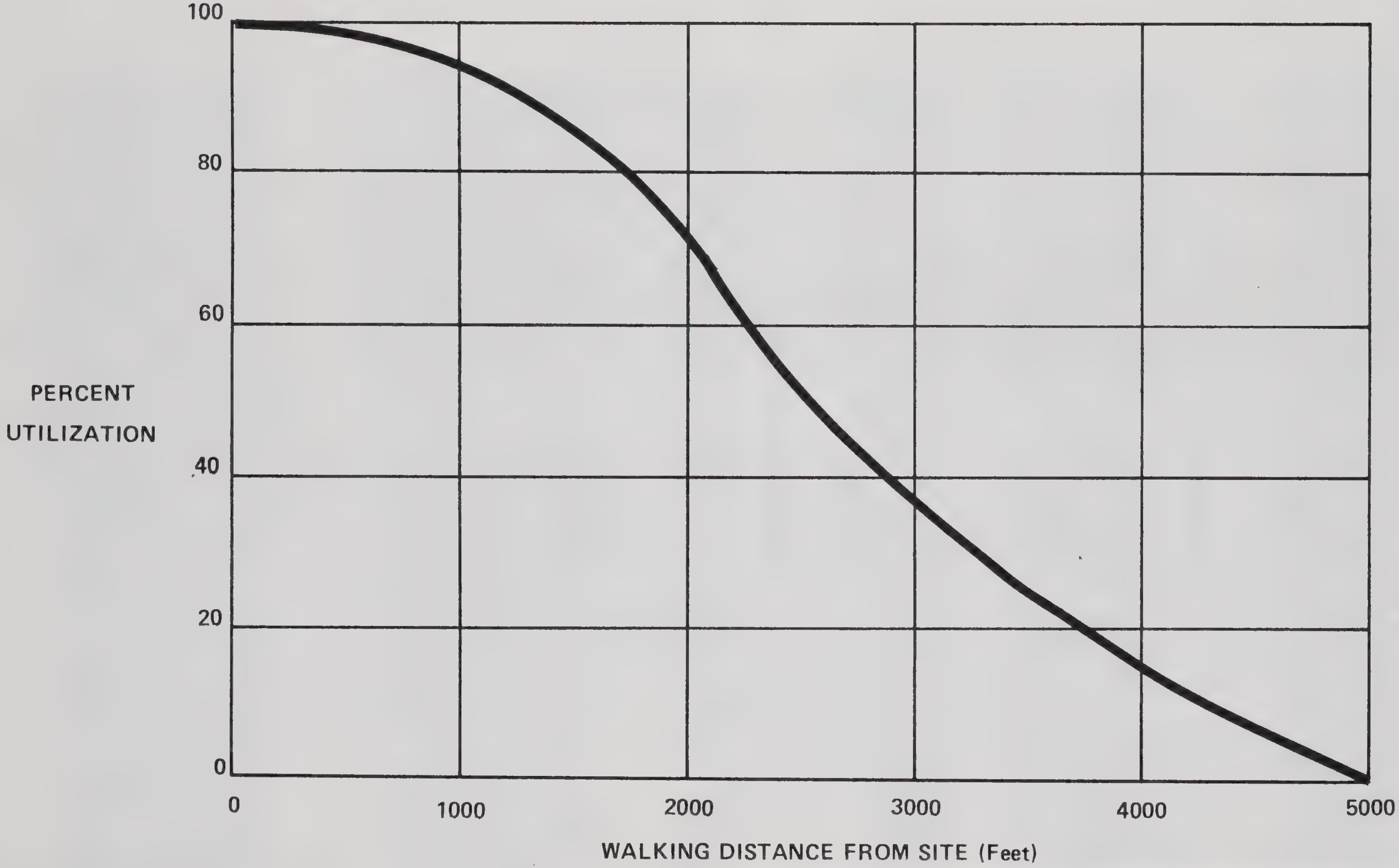
1. Arena Parking Demand

Travel Mode

Use of the private automobile an an arrival mode to the arena is largely dependent on the cost of parking, the available parking supply and the existence of other convenient transportation alternatives for the arena patrons.

Due to the close proximity of the CalTrain Cahill Station, seven County Transit bus routes operate within an acceptable walking distance of the project site. The introduction of express bus service at premium rates by County Transit and other neighboring transit agencies may be considered if an arena is built. Also, it is anticipated that a few of the arena patrons will use charter buses. The Cahill station is within walking distance of the project site.

According to the current schedule, nine trains arrive at the Cahill Station between 6:00 and 8:00 PM on weekdays. These trains could serve events starting at or before 8:00 PM. For departures, just one train leaves after 10:00 PM. Depending on the demand, another train could be added to serve late departures after 10:00 PM. The Light Rail station at First and Santa Clara Streets will be 0.75 miles away, which is beyond an acceptable walking distance to the project site.



PARKING FACILITY UTILIZATION

FIGURE A-26

Based on the existing and potential bus and rail services, the following percentages reflect potential transit usage by arena patrons for weekday evening events. Regular County Transit routes, express routes and charter buses would carry on estimated two percent of the total attendance. CalTrain regular service would carry five percent of the peninsula patrons residing in the U.S. Highway 101 corridor (this equates to 1.6 percent of the total arena patrons).

Vehicle Occupancy

Vehicle occupancy for an arena varies by the type of event. For example, family shows, which attract many youngsters and senior citizens, normally have a higher person-per-vehicle ratio than sporting or other events. In the past decade, the professional basketball games at the Oakland Coliseum averaged from 2.90 to 3.15 persons per vehicle. During the same period at the Coliseum, family shows ranged from 4.5 to 5.0 persons per vehicle. Concerts typically range between 3.5 and 4.0 persons per vehicle.

The firm of Coliseum Consultants is a member of the team assembled for the study of alternative arena sites in San Jose. Based on their experience, the consultants recommended that 3.0 persons per vehicle be used as the average vehicle occupancy rate for this study. On the basis of this recommendation, a vehicle occupancy factor of 3.0 was adopted.

Peak Attendance Period

The attraction of people to events held at the proposed arena will depend largely on the patrons' available leisure time. As a result, the majority of events will be held during evenings and on weekends to avoid conflicts with normal working hours.

Experience with other indoor arena facilities around the country has shown that most regularly-scheduled professional sporting events are held on weekends and during weekday evenings. Certain other special events may have weekday show times, although peak attendance usually occurs during the evenings and on weekends. For this analysis, the parking demand was estimated for two time periods. The parking demand for the evening events was estimated based on the full capacity attendance for major events. The parking demand for afternoon events, consisting of family shows such as circuses and ice shows, was estimated for an average attendance level based upon the experiences of other similar arena facilities around the country.

Arena Size

The proposed arena would be designed to host more than one type of attraction. Similar arenas are used for sporting events such as National Basketball Association (NBA) games, ice hockey, professional boxing and wrestling and tennis tournaments. In addition to the sporting events, the arena would also host events not related to sports (i.e., concerts, ice shows and circuses). Planning principles dictate that for an arena facility intended for multiple uses, the regular event generating the largest parking demand should be the basis for determining parking provisions. For example, NBA games are considered to be events that would occur with regularity.

The other important factor that should be considered in planning parking for an arena facility is the maximum seating capacity. In this analysis, two alternative seating capacities were analyzed (17,500 seats and 20,000 seats).

Parking Demand Estimates

The parking demand estimates for the 17,500 and 20,000 seats arena alternatives for evening full capacity attendance are shown in Table A-16. The parking demand for weekday afternoon matinee events are also shown in the Table A-16.

The 17,500 seat arena would need 5,600 parking spaces at the arena site or within a reasonable walking distance from the arena for the weekday evening and weekend events. Similarly, the 20,000 seat arena would need 6,470 parking spaces. Weekday afternoon events would occur about 20 times per year. The average attendance for these afternoon events would be between 10,000 and 12,000 persons. The matinee events would require 2,610 parking spaces.

Due to the family orientation of matinee shows, the events are usually attended by large family groups who arrive together in automobiles or vans. The vehicle occupancy for automobiles used to travel to such functions is also reported to be higher than average. A vehicle occupancy of 4.0 persons per vehicle is not uncommon. The use of public transportation is very low. However, the use of charter buses to carry school children and senior citizens is extensive. The estimated number of parking spaces required for matinee events is based upon an average attendance of 11,000 persons per event and an average vehicle occupancy of 4.0 persons per vehicle, with five percent of the arrivals attributed to charter buses.

2. Available Parking for Weekdays Evenings and Weekends

The project site would provide 2,020 parking spaces for the exclusive use of arena patrons. The remainder of the parking supply would have to be met by utilizing the available parking facilities within an acceptable walking distance. The inventory of available off-street parking spaces outlined previously showed that 8,464 spaces would be available. In order to determine the percentage utilization of the parking facilities, the walking distance between each parking facility and the project site were measured. The parking facility locations are shown in Figure 27. The walking distance and the percentage-use graph discussed above was used to estimate the number of spaces that are likely to be used by arena patrons. Table A-17 shows the available parking spaces and the number of spaces that could possibly be used, based upon acceptable walking distances.

It should be noted that this analysis assumes that arena events would be held in the evening (starting at 7:30 PM) or on the weekends, as these parking facilities are fully utilized on weekdays between 7:00 AM and 6:00 PM by the occupants of the buildings they were designed to serve. It will be necessary to obtain permission from the owners of the parking facilities prior to utilization by arena patrons. It is also worth noting that the Park Center Plaza II garage, which is heavily utilized during the evenings by the patrons of the Center for Performing Arts (CPA), was excluded from this study as a source of parking supply to serve arena patrons. Similarly, the Lincoln Property garage, which is in the vicinity of the CPA, was assumed to provide 60 percent of its capacity for arena patrons.

TABLE A-16

ARENA PATRONS MODE OF ARRIVAL AND PARKING DEMAND -- SITE A

Attendance	Bus Users (persons)	CalTrain Users (persons)	Car Users (persons)	Required No. of Parking Spaces
Evening and Weekend Events:				
17,500	350	275	16,875	5,620
20,000	400	310	19,290	6,430
Weekday Afternoon Event:				
11,000	550	--	10,450	2,610

TABLE A-17

PARKING SUPPLY AND ESTIMATED PARKING USAGE

BY ARENA PATRONS -- SITE A

Parking Facility Number	Description	Total Spaces	Available For Arena Use	Spaces Available
1	On-Site	2,020	100%	2,020
2	Cahill Station	679*	100%	679
3	San Jose Water Company	372	100%	372
4	Parking Area Under Rt. 87	320	100%	320
5	Pacific Valley Bank Garage	700	75%	525
6	Park Center Plaza III	1,220	75%	915
7	Lincoln Property Garage	1,300	60%	780
8	Boone-Fox Bldg. (Not Built)	873	60%	525
9	William Wilson Bldg.	715	60%	430
10	Herron Bldg.	483	40%	195
11	Market Street Garage	1,500	30%	450
	TOTAL	10,182	70%	7,211

* According to new site plan for Cahill Station.

AVAILABLE PARKING FACILITIES IN PROJECT VICINITY

FIGURE A-27

Available Parking for Weekday Afternoons

The parking demand for weekday afternoon events was estimated to be 2,610 spaces. 2,020 parking spaces will be available on-site for these events. The 320 spaces under State Route 87 could be reserved for days when the afternoon events are scheduled. The remaining 270 spaces would be made up at the multiple private parking garages in the project vicinity (refer to Figure 27).

Employee Parking

The parking areas on-site will be reserved for customers. Therefore, arena employees would not be allowed to park on-site. In order to satisfy the employee parking demand, it would be necessary to establish a remote parking area for their use. The employees would be required to park at this location. A comprehensive, long-term plan to provide for employee parking would be implemented to assure the full use of on-site parking for arena patrons.

3. Arena On-Site Parking Alternatives

Two site development alternatives are proposed for the project site. Under each alternative, several parking options are being considered. These alternatives are discussed below.

Arena On-Site Parking Alternative A-1

A two-phase parking plan is proposed under this alternative. Each phase will provide a minimum of 2,020 parking spaces.

Phase 1

In this phase, the 2,020 parking spaces will be located within three areas. A surface parking lot with a capacity of 575 spaces will be located in the block bounded by Autumn Street, Saint John Street, the confluence of Los Gatos Creek and the Guadalupe River and Santa Clara Street. A parking lot with 1,370 spaces is proposed west of Montgomery Street, just northerly of the proposed arena facility. The remaining 75 spaces will be provided in a surface lot westerly of Autumn Street and southerly of Saint John Street.

Phase 2

In this phase, the 2,020 on-site parking spaces will be located within three areas. The 575 spaces on the surface lot will be eliminated to provide room for the Guadalupe River Park. There are two options to replace this parking area. Option 1 proposes that these spaces be provided on another surface lot located at the southwesterly quadrant of Julian and Montgomery Streets. Under Option 2, these spaces will be provided in a parking structure in the block bound by Santa Clara Street, Montgomery Street, Crandall Street and Cahill Street.

Arena On-Site Parking Alternative A-2

A two-phase parking plan is proposed under this alternative. Each phase will provide all of the 2,020 parking spaces.

Phase 1

In this phase, the 2,020 parking spaces will be located in four facilities. A surface parking lot with 575 spaces will be located in the block surrounded by Autumn Street, Saint John Street, the confluence of Los Gatos Creek and the Guadalupe River and Santa Clara Street. Another surface lot with 535 parking spaces will be situated west of Montgomery Street, just north of the proposed arena facility. A parking structure is proposed with 835 parking spaces in the block bounded by Santa Clara Street, Montgomery Street, Crandall Street and Cahill Street. The remaining 75 spaces will be provided in a surface lot west of North Autumn Street and south of Saint John Street.

Phase 2

In this phase, the 2,020 on-site parking spaces will be located differently than in Phase 1. The 574 spaces on the surface lot will be eliminated to provide room for the Guadalupe River Park. These lost spaces will be provided in a parking structure at the site of the surface lot west of Autumn Street and north of the proposed arena facility.

4. Conclusion - Environmental Impact

Based on the parking analysis provided in this document, there is sufficient public parking available in the project vicinity to accommodate peak attendance levels at the proposed arena facility. Although some of the patrons may park on-street in the downtown area, there is sufficient parking available in the public garages. **Accordingly, this is considered a less than significant impact.** However, some arena patrons may chose to parking on residential roadways surrounding the project site. **As discussed in the Land Use and Pedestrian and Neighborhood Analysis sections of this document, this is considered a significant impact.**

MITIGATION MEASURES

The parking demand and supply analysis outlined in this section led to the following parking strategies for mitigation measures that are proposed to be included in the project and other mitigation measures that are not included but could reasonably be expected to reduce adverse parking impacts.

- The project site would provide 2,020 on-site parking spaces. These spaces should be reserved for arena patrons only. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- A comprehensive, long-term plan should be prepared prior to arena operation to provide parking for arena employees at a location away from the site. A shuttle service could be arranged to carry the employees to and from the arena area

during peak events. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Arrangements should be made to provide parking areas for charter buses, away from the site during arena performances. This arrangement should be strictly enforced. This mitigation in and of itself would not reduce this impact to a less than significant level. **(Not Presently Included in Project)**

  In order to assure the availability of privately-owned parking facilities for arena patrons, arrangements should be made with the owners of these facilities. This mitigation, in conjunction with the proposed on-site parking, would reduce the impact to a less than significant level. **(Included in Project)**

  The parking demand for afternoon events should be monitored closely. If the demand exceeds the supply, arrangements should be made to increase the parking at or near the arena. This mitigation, in conjunction with the proposed on-site parking, would reduce the impact to a less than significant level. **(Included in Project)**

- A residential permit parking program should be implemented and strictly enforced to control on-street neighborhood parking. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Neighborhood impacts in the immediate vicinity of the project from the intrusion of arena patron traffic and on-street parking can be reduced by temporary barricade system during events at the arena. These barricades would exclude arena traffic from these neighborhoods. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Increased traffic in neighborhoods generated by arena patrons could, in some cases, be reduced by a traffic diverter system that would restrict through traffic. This mitigation measure would create secondary impacts, since the diverted traffic would impact other areas. **(Not Presently Included in Project)**

- Utilization of parking facilities could reduce the parking impact through the implementation of an effective signing program that would direct patrons to parking facilities. **(Not Presently Included in Project)**

D. PEDESTRIAN AND NEIGHBORHOOD ANALYSIS

EXISTING SETTING

The project site is planned to have more than 70 percent of it parking needs provided at parking facilities located away from the arena facility. This arrangement will require patrons to walk to the arena site. Consequently, it is necessary to assess the existing facilities available to serve pedestrians between the parking areas and the arena facility. This analysis assesses the existing conditions and estimates the future pedestrian facility requirements.

1. Existing Pedestrian Facilities

There are about 10 parking facilities that would serve the arena patrons. All of the major parking facilities are located east of the proposed arena site, and major pedestrian traffic is expected from these parking areas. Some pedestrian traffic is also expected from the west along The Alameda and Julian Streets.

An inventory of the existing pedestrian facilities was conducted along the perceived pedestrian paths between the parking areas and the project site. These include sidewalk widths, pedestrian crosswalks at intersections, traffic regulations, signs and signal locations with and without pedestrian signal heads. The sidewalk inventory included bus stops, handicap ramps and the location of sidewalk furniture and other impediments that might restrict sidewalk efficiency. Also, the intersections with heavy traffic volumes and significant pedestrian crossing conflicts were observed.

The purpose of this inventory was to assess the opportunities and constraints offered by the existing transportation system for pedestrian access and circulation between the major parking areas and the proposed arena. The pedestrian paths between the parking facilities and the arena site are shown in Figure A-28.

Sidewalk Analysis

The major pedestrian route leading to the arena site will be Santa Clara Street between Market and Cahill Streets. The northerly side of Santa Clara Street has a 12 foot wide sidewalk between Market and Autumn Streets. On the southerly side, a 12 foot wide sidewalk exists between Market Street and Almaden Boulevard. On the southerly side of Santa Clara Street between Almaden Boulevard and Autumn Street, the sidewalk is seven feet wide.

Crosswalk Analysis

There are five signalized intersections on Santa Clara Street between Market Street and Almaden Boulevard. Once the State Route 87 northbound off-ramp is constructed, another signal will be added on this section of Santa Clara Street. Also, three signalized intersections are located on Santa Clara Street in front of the project site at Autumn, Montgomery and Cahill Streets.

An inventory was conducted to obtain information regarding the existing traffic signal locations, pedestrian signal head locations, pedestrian crosswalks and the availability of handicap ramps at these intersections. This information was used to determine the adequacy of pedestrian movement along Santa Clara Street.

2. Neighborhood Parking

When an activity center, such as an arena, is introduced within a reasonable walking distance of a residential neighborhood, a certain number of persons will always attempt to park their automobiles in the neighborhoods to avoid parking costs or traffic congestion. This will occur regardless of how much parking is provided at the activity center.

PROJECT SITE PRIMARY PEDESTRIAN PATHS

FIGURE A-28

On-Street Neighborhood Parking

The neighborhood on-street parking inventory and usage study, discussed in Section C of this document, were conducted to understand the existing parking supply and demand situation. It was not conducted to condone the use of neighborhood roadways for parking by arena patrons. The results of the existing parking survey indicate there are available parking spaces in the neighborhoods surrounding the project site. Therefore, arena patrons would attempt to park on the neighborhood roadways since these free spaces are conveniently located.

POTENTIALLY SIGNIFICANT IMPACTS

1. Pedestrian Facilities

Sidewalk Analysis

As most of the parking facilities serving the arena are located along Santa Clara Street, the pedestrians heading towards the arena would congregate on the sidewalks along the roadway. The arena patrons would walk in platoons. Platoon flow is defined as the bunching of pedestrians because of internal or external impedances.

Recent research (Davis and Braksima, 1980) has indicated that the level of service occurring in platoons is generally about one level of service lower than the level indicated, based on average flow criteria. In platoon flow, behavioral norms will evolve whereby pedestrians may be willing to accept smaller buffer zones at disproportionately higher speeds than indicated by the level of service criteria for average conditions. Based upon the recent research, it is estimated that for LOS D, a pedestrian flow of about 30 persons per minute per foot width of the sidewalk can be accommodated. Assuming that the 12 foot sidewalk will only have a 10 foot effective width, each side would accommodate 300 pedestrians per minute or 600 pedestrians on both sides of the roadway (refer to Figure A-29). Pedestrian traffic that falls below a LOS D would constitute a significant impact.

According to surveys conducted of arrival patterns for special events, the patrons arrive at different rates per 10 minute period. The largest percentage to arrive for entertainment events within a ten minute period was reported to be 24 percent, which arrived 20 to 30 minutes before the start of the event. For a 20,000 capacity crowd, it was estimated that the largest average flow would be 500 pedestrians per minute. Therefore, it is estimated that flow would experience a LOS D. However, during peak events and at specific times (i.e., PM peak hour or just after a peak event), the pedestrian LOS could fall to a LOS of E or F for temporary periods of time (approximately ten to 20 minutes) on certain sidewalks.

Pedestrian Crosswalk Analysis

The existing traffic signals along Santa Clara Street between Market and Cahill Streets will require new signal phasing and timing plans to accommodate future automobile and pedestrian traffic. The signal timing analysis conducted for the signalized intersections showed that a 90 second cycle will be necessary. Due to heavy pedestrian crossing demand, the timing plans will require longer pedestrian

LEVEL OF SERVICE A

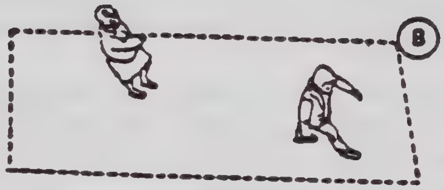
Pedestrian Space: ≥ 130 sq ft/ped Flow Rate: ≤ 2 ped/min/ft

At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.

LEVEL OF SERVICE B

Pedestrian Space: ≥ 40 sq ft/ped Flow Rate: ≤ 7 ped/min/ft

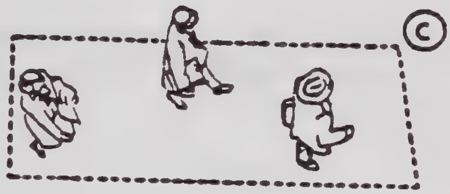
At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



LEVEL OF SERVICE C

Pedestrian Space: ≥ 24 sq ft/ped Flow Rate: ≤ 10 ped/min/ft

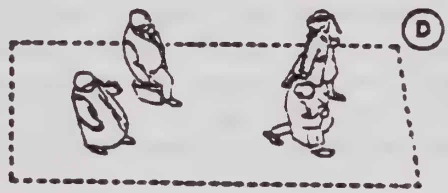
At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.



LEVEL OF SERVICE D

Pedestrian Space: ≥ 15 sq ft/ped Flow Rate: ≤ 15 ped/min/ft

At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



LEVEL OF SERVICE E

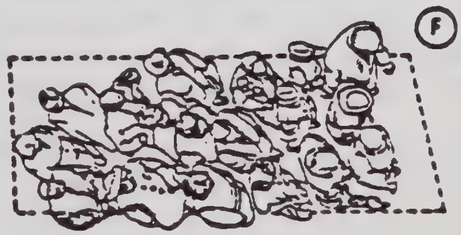
Pedestrian Space: ≥ 6 sq ft/ped Flow Rate: ≤ 25 ped/min/ft

At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.

LEVEL OF SERVICE F

Pedestrian Space: ≤ 6 sq ft/ped Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.



HIGHWAY CAPACITY MANUAL (1985)

ILLUSTRATION OF WALKWAY LEVEL OF SERVICE FIGURE A-29

cross times for the east-west movements. Also, after the completion of the State Route 87 off-ramp at Santa Clara Street, it will be necessary to install a traffic signal at this intersection.

Implementation of these intersection improvements to accommodate the additional pedestrians will also affect the LOS levels at the intersections. In most cases, accommodation of the pedestrians would cause the LOS of the intersection (for vehicles) to deteriorate one level (i.e., from LOS C to LOS D). However, high volumes of pedestrians attempting to cross an intersection during peak events could cause increased queueing of vehicles at the intersections.

If the current signal controllers are not capable of having different signal timing plans at different times of the day, a new master controller will be required to interconnect the signals along Santa Clara Street between Market and Cahill Street, and provide different signal timing arrangements for different peaks during arena operation.

During peak volume events, the impact of pedestrians with vehicular traffic at intersections would have a significant impact on the project area.

3. <u>Street Lighting</u>

Currently, there is street lighting on all roadways expected to be used by pedestrians to and from the arena and the parking facilities. However, there are certain areas where a higher level of illumination will be required, specifically the section of Santa Clara Street between Market Street and the project site. The plaza area in front of the proposed arena and the east and north sides of the building should also be well illuminated with floodlights to provide a safe environment for pedestrians.

This is not considered a significant impact.

4. <u>Off-Street Parking</u>

In the vicinity of the project site, there exists a few private surface lots off of The Alameda, west of Stockton Street. These lots could potentially provide parking for an estimated 200 vehicles. Although this parking supply was not assumed in this study, the lots were considered in the analysis of potential neighborhood impacts by an arena development on the project site. This potential parking supply could generate up to an estimated 200 trips through the roadways serving these lots during the arena peak hour(s) of traffic activity.

This could contribute to cumulative effects in the immediate neighborhoods to constitute a significant impact.

5. <u>Neighborhood Traffic Impacts</u>

The automobile traffic to and from the arena is expected to primarily use the major roadway system. However, some arena patrons would infiltrate the neighborhood roadways to circumvent congestion on the major roadways or to park on the neighborhood roadways or in a neighborhood parking lot. This added

traffic will cause inconvenience and annoyance to residents. A number of neighborhood groups have expressed concerns regarding parking and traffic impacts in their area if the proposed arena facility is constructed on the site.

As demonstrated in the parking demand analysis, all of the major parking facilities are located to the east of the project site in the downtown commercial and professional office area. Although there are neighborhoods located between the parking facilities and the project site, the larger areas of residences are situated westerly of the project site and easterly of the parking facilities. The expected pedestrian traffic generated from a peak arena event would utilize these primary parking facilities and arterial roadways for access to the project site. The highest volume of pedestrian traffic would utilize downtown facilities which are located away from residential neighborhoods. The parking facilities will also contribute to disbursed parking, pedestrian and vehicular traffic. Although this in itself will not reduce impacts, it may provide some relief in the manner that traffic and pedestrians may impact an intersection, especially after an event.

Therefore, due to the proximity of major parking facilities in the downtown commercial and office areas, pedestrian impacts, in and by itself from the arena facility, would have a less than significant impact on the project area. During peak events, the pedestrian impacts would contribute to the significant, unavoidable land use impact on neighborhoods in the immediate vicinity of the project site.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included in the project but could reasonably be expected to reduce adverse impact associated with the project.

1. Pedestrian

The southerly side of Santa Clara Street between Almaden Boulevard and Autumn Street is only seven-feet wide. It is recommended that during the design stage of State Route 87, construction provisions should be made to allow for the widening of this section of the sidewalk from seven feet to 12 feet. After the arena is in operation, the pedestrian flows should be monitored and, if warranted, the widening should be constructed. The pedestrian flow from the west on The Alameda is estimated to be approximately 100 persons per minute. The existing sidewalks have sufficient width to accommodate this flow. **(Not Presently Included in Project)**

The existing traffic signals along Santa Clara Street between Market and Cahill Streets will require new signal phasing and timing plans for accommodating future automobile and pedestrian traffic. **(Included in Project)**

Handicap ramps should be installed at the following intersections **(Included in Project):**

- Delmas and Santa Clara Streets;
- Autumn and Santa Clara Streets;
- Montogomery and Santa Clara Streets; and
- State Route 87 Northbound Off-Ramp and Santa Clara Street.

Street lighting should be improved for the major access routes to parking facilities between Market and Stockton Streets. The area in front of the arena and the east and north sides of the building should also be well-illuminated with floodlights to provide a safe environment for pedestrians. **(Included in Project)**

2. Neighborhood Traffic

A neighborhood traffic impact study is currently being undertaken by the Traffic Operations Department of the City of San Jose, at the request of the Shasta/ Hanchett Neighborhood Association. A number of recommendations are being prepared for discussions with the neighborhood group. **(Not Presently Included in Project)**

To alleviate the neighborhood roadway impacts from the proposed arena site, it is recommended that a commitment be made towards planning, designing and implementing a Neighborhood Traffic Control Program. Modifications to this program may be implemented after the arena is in operation and the neighborhoods have been closely monitored to ascertain the amount of infringement of arena traffic on the local residential roadways in the vicinity of the arena. All future traffic control programs are subject to General Plan conformance and separate environmental review. **(Not presently Included in Project)**

The neighborhood traffic control program, once implemented, could minimize the cut-through commuter traffic. After the opening of the arena facility, if if the City determines that the arena patrons are utilizing the residential roadways, temporary barricades should be erected to eliminate this problem during arena operation. **(Not Presently Included in Project)**

It is also recommended that if the residents request a residential permit parking plan, then it should be implemented and strictly enforced to control on-street neighborhood parking. **(Included in Project)**

The construction of an arena facility such as this has the potential to create serious traffic and parking concerns for the residents in the immeditate neighborhoods. A full commitment should be made to the neighborhood residents to thoroughly investigate any impacts occurring after the opening of the arena facility and to implement solutions that are acceptable to the neighborhood groups. **(Included in Project)**

Major intersections that would experience significant pedestrian levels of service should be controlled by traffic control officers. **(Included in Project)**

Implementation of roadway signage and/or advertising programs to direct arena patrons to major parking facilities in the downtown area should be pursued. **(Not Presently Included in Project)**

E. CLIMATE AND AIR QUALITY

EXISTING SETTING

The air quality of a given area is not only dependent upon the amount of air pollutants emitted locally or within the air basin, but also is directly related to the weather patterns of the region. The wind speed and direction, the temperature profile of the atmosphere and the amount of humidity and sunlight determine the fate of the emitted pollutants each day, and determine the resulting concentrations of air pollutants defining "air quality."

1. Regional Climate

The San Francisco Bay Area climate is a mediterranean type, characterized by mild and rainy winters and warm and nearly dry summers. There is a high percentage of sunshine, especially in the summertime after the typical morning fog burns off. The temperature, humidity, wind and precipitation throughout the year depend entirely upon the movements of marine air, the location and strength of the dominant Pacific high-pressure system and the coastal temperature gradient.

During the summer months, the Pacific high typically sits near the California coast, pushing oncoming eastbound storm systems to the north through the Northwest United States and Canada. Subsidence of warm air aloft, associated with this system, creates the frequent summer atmospheric temperature inversion and stagnated conditions. The persistent reversal of the normal atmospheric temperature lapse rate (change with temperature) may be several hundred to several thousand feet thick, effectively trapping pollutants emitted at ground level. Winds during the summer months are generally light, except for late afternoon, on-shore flow from differential heating between the cool ocean and the warm land mass. Average temperatures increase as distance from the Golden Gate Bridge increases. Average maximum temperatures during the summer months are near 80-degrees Farenheit in the South Bay Area, and average evening minimums are near 50-degrees Farenheit.

During the winter months, the Pacific high pressure system moves southward, allowing ocean-formed storms to move through the region. With the dominance of the unstable low-pressure systems during the winter, and less sunshine, conditions favoring smog formation are at a minimum. However, radiation cooling during the evening hours sometimes creates thin inversions, concentrating carbon monoxide emissions at ground level. Average maximum winter temperatures in Santa Clara County are approximately 60 degrees Farenheit, and average evening lows are approximately 40 degrees Farenheit.

Lying in the rain shadow of the Santa Cruz Mountains, the South Bay Area receives only two-thirds of the precipitation which falls upon San Francisco, and one-quarter of that falling in the coastal mountains. Very little rain falls in the months of May through October (usually near 0.5 inches). The majority of the rainfall comes in the months of December through February (approximately 3.5 inches per month in normal rainfall years). The average annual rainfall in the South Bay Area is 13 to 15 inches.

2. Wind Characteristics in the South Bay Area

Wind in the South Bay Area is predominately from the northwest, as shown in the summary of wind data for downtown San Jose (Table A-18). The northwesterly winds are a result of ocean-driven flow coming through the Golden Gate Bridge and toward the South Bay. During mid-winter months, southeasterly winds are present nearly 40 percent of the time, due to frequent low-pressure storm fronts and their characteristic counter-clockwise flow. Calm conditions occur nearly 13 percent of the time during the winter months, but only five percent during the summer months.

Average wind speeds in the downtown San Jose area are less than five-miles per hour on an annual average basis. The highest wind speeds occur during the late afternoon on-shore cooling in the summer months, and during the winter storms. During storm periods, winds frequently gust at 20 to 30 miles per hour.

3. Ambient Air Quality

Air quality near the project site is subject to the same problems experienced by most of the San Francisco Bay Area, particularly the southerly portion. Emissions from millions of vehicle-miles of travel each day often are not mixed and diluted, but rather trapped near ground level by a temperature inversion. Prevailing air currents generally sweep from the mouth of the Bay towards the south, picking up and concentrating pollutants in the basin around San Jose and the Almaden Valley. A combination of emissions in the South Bay, the transport of pollutants from other areas and the natural mountain barriers (the Diablo Range to the east and the Santa Cruz Range to the west) produce high concentrations which sometimes exceed ambient air quality limits established by the Bay Area Air Quality Management District (BAAQMD). The most recent air quality data from the nearest BAAQMD monitoring station on Fourth Street in San Jose, and the ambient standards presently in effect, are tabulated in Table A-19.

Ozone, the primary photochemical oxidant "smog" component, is produced by complex reactions of hydrocarbons and nitrogen oxides (NO_x) in the atmosphere. Daily ozone concentrations are heavily dependent upon the weather, and thus vary substantially from year to year. Since the adverse atmospheric conditions in 1978, when 12 exceedances were recorded in San Jose, high ozone days have been significantly lower. However, 1983 and 1984 were unusually warm and stratified ozone seasons, with nine and seven exceedances, respectively. The 1985 and 1986 summer weather was cooler and had a more-normal ventilation pattern, bringing ozone exceedances back down. The three-year Expected Annual Exceedance value (average of the last three years) is now 3.3 days per year.

Another problem pollutant in the South Bay Area is carbon monoxide (CO), like ozone, is heavily-dependent upon both vehicle emissions and weather. High CO concentrations in the South Bay occur mostly under low wind conditions during winter evenings. Exceedances of the nine-parts per million (ppm), eight-hour ambient standard increased to 17 during 1985 in San Jose (the highest number of exceedances since 1979), but dropped again in 1986 to four incidents. Both CO and ozone have been reduced significantly by improved emission controls on new automobiles in the past decade.

TABLE A-18

SUMMARY OF WIND DATA FOR DOWNTOWN SAN JOSE

	Direction	% of Time	Mean Speed (mph)
Annual Distribution			
	NE	3.1	1.5
	E	0.5	1.4
	SE	16.9	2.7
	S	19.2	4.2
	SW	6.8	2.2
	W	1.1	2.5
	NW	40.7	4.3
	N	2.9	2.4
	Calm	8.9	---
		100	3.3
Winter Distribution			
	NE	2.9	1.5
	E	0.5	1.4
	SE	20.8	2.6
	S	23.5	4.4
	SW	7.9	1.9
	W	1.5	2.4
	NW	28.1	3.9
	N	2.1	2.6
	Calm	12.7	---
		100	3.0
Summer Distribution			
	NE	3.0	1.5
	E	0.4	1.5
	SE	11.4	3.0
	S	17.4	4.3
	SW	5.4	2.6
	W	0.6	2.9
	NW	52.8	4.6
	N	3.9	2.4
	Calm	5.1	---
		100	3.8

TABLE A-19

DATA FROM BAAQMD MONITORING STATION

(FOURTH STREET, SAN JOSE)

POLLUTANT	1984	1985	1986	Standards	Measurement Units
OZONE					
Maximum	16	14	14	12(1)	pphm, 1-hr ave
Exceedances	7	2	1	1	days per year
3-year average	5.3	6.0	3.3	1	Expected Annual Exceedances
CARBON MONOXIDE					
Maximum 8-hour	20	21	11	9(2)	ppm, 8-hr ave
8-hour exceedances	5	17	4	1	days per year
NITROGEN DIOXIDE					
Maximum	18	19	16	25(3)	pphm 1-hr ave
Exceedances	0	0	0	1	days per year
TOTAL SUSPENDED PARTICULATES					
Annual mean	79	90	(6)	60(4)	annual geomet. mean
Daily exceedances	6	19	24	1(5)	% of days above 150 ug/m^3

NOTES:

(1) Federal standard; State standard is 10 pphm.
(2) Federal and State ambient standard; State standard is also 20 pphm for 1 hour.
(3) State standard; Federal standard is 5 pphm annual average.
(4) State standard; Federal standard is 75 ug/m^3
(5) Federal standard; State standard is 100 ug/m^3, measured as thoracic particles (small diameter).
(6) Not published for 1986.

Source: BAAQMD monitoring data -- 4th Street station, San Jose.

Total suspended particulates, produced by vehicles, heavy industry and soil-moving activities, dropped significantly in 1983, but heavy construction in downtown San Jose has produced high concentrations since 1984. The ambient standard for 24 hour sampling has been exceeded a significant number of the days tested in downtown San Jose for the past three years. These readings are not considered representative of the general San Jose exposure, but they are probably fairly representative of the nearby project area.

Sulfur dioxide is primarily associated with chemical and refining industries, and has never approached the ambient standard in the San Jose area, nor have sulfur dioxide standards been exceeded anywhere in the District since 1976.

Nitrogen oxides are produced heavily by vehicles and high-temperature industrial operations, but as yet have not posed serious problems in the region. However, the South Bay Area often has the highest NO_x concentrations in the District.

Because there are exceedances of some ambient standards in the Bay Area, the District has been designated a Non-Attainment area by the United States Environmental Protection Agency (EPA) for CO, ozone and total suspended particulates. All significant sources in the District must share responsibility for each basin exceedance, including those locations where air quality is good.

POTENTIALLY SIGNIFICANT IMPACTS

Vehicle-trips carrying patrons to and from events at the proposed arena facility are the primary sources of emissions associated with the implementation of the project. The trip profile associated with the arena facility is an incoming group of vehicles (anticipated to be one vehicle for every three arena patrons) in the 90-minutes prior to the event starting time, and the reverse trip pattern in the 60-minutes following an event. This profile is essentially superimposed upon the existing commute-based traffic pattern. The peak arrival traffic for a normal weekday evening event is expected to follow the PM peak commute period, but not coincide with it.

Other types of air quality impacts associated with the proposed project, such as stationary sources of pollutants include heating system emissions, which represent a minimal contribution. Potential dust and particulates generated during site preparation and grading may be controlled by routine application of water and/or road oil.

Particulates generated by roadway resuspension are relatively small amounts and vary near the roadway. Although it is possible to estimate a range of values for these contributions, the estimates would have little validity except under specific and controlled conditions not found in actual practice.

1. <u>Sensitive Receptor Locations</u>

Sensitive receptors for potential air quality impacts of the proposed project are primarily the older residential neighborhoods situated northeasterly of the Julian Street/Guadalupe Parkway intersection and southwesterly of Stockton Street. A few scattered residential locations in the area north of the project site will remain even after completion of the proposed arena facility. Three representative worst-case receptor locations were as shown on Figure 30 and listed below:

SOURCE: ENVIRONMENTAL CONSULTING SERVICES (1987)

AIR QUALITY RECEPTOR LOCATIONS

FIGURE A-30

- Fox Avenue and San Pedro Street;
- Rhoades Avenue and Julian Street; and
- Montgomery and Julian Streets.

These receptors were selected as a result of their being sensitive and/or representative of the project area as a whole. The extent to which these locations would be affected by the proposed project is evaluated in the following sections. Other receptor locations in the project area would experience similar or lesser impacts.

2. Data and Methodology

Vehicles are responsible for the emmission of a number of pollutants: carbon monoxide (CO), hydrocarbons, particulates, NO_x, and others. The most widely-used method of evaluating the potential impact of project-related vehicles is the modeling of the concentration of CO at nearby sensitive receptor locations.

Vehicular CO emissions are directly related to the number of vehicle trips and the average vehicle emission rate. Newer vehicles have lower emission rates than older vehicles because of better emission controls. In addition, average emissions per mile decrease as average speeds increase. But after the pollutants are emitted, atmospheric conditions control pollutant mixing, dispersion and the ultimate concentrations achieved. These interrelated factors are considered in a simplified way by roadside CO dispersion modeling.

The CALINE 3, multiple line-source model used for this study was developed by the California Department of Transportation, based upon standard Gaussian diffusion relationships (Turner, 1970). In basic terms, CALINE takes emissions from major arterials in the area, under stagnated atmospheric conditions and low wind speed, and sums the contributions of major roadways at selected receptors for various wind directions.

To evaluate the potential air quality impacts, six traffic conditions were evaluated and compared, based upon the traffic study prepared for this project by Barton-Aschman Associates, Incorporated (1987).

- Existing 1987 traffic;
- Year-1991 Base traffic (without project);
- Year-1991 traffic (with 17,500 patrons attending);
- Year-1991 traffic (with 20,000 patrons attending);
- Year-2000 traffic (with 17,500 patrons attending); and
- Year-2000 traffic (with 20,000 patrons attending).

3. Impact Analyses

Carbon monoxide concentrations at the three representative receptors were modeled during the PM peak hour for each of the traffic conditions and for the eight wind conditions. The eight wind conditions provide a representative scenario for yearly conditions in the project area. Emissions are accumulated by CALINE from each of 20 roadway segments ("links") in the project area defined by the roadways listed in Table A-20. Carbon monoxide concentrations for the wind directions giving the highest values are listed in Table A-20.

Table A-20 shows one hour average concentrations modeled. Traffic associated with the proposed project will not increase air quality concentrations at

TABLE A-20

PEAK-HOUR CARBON MONOXIDE MODELING (ppm)

CASE	1	2	3
1. Existing - 1987	1.3	0.4	0.8
2. Base Case - 1991	0.6	0.5	1.1
3. Year 1991 - 17,500	0.6	0.5	1.2
4. Year 1991 - 20,000	0.6	0.5	1.2
5. Year 2000 - 17,500	0.5	0.7	0.8
6. Year 2000 - 20,000	0.5	0.7	0.8

Local Background Concentration: 12 ppm

Ambient Standard: 20 ppm

Table A-21

EMISSIONS COMPARISONS (1995 -- TONS PER DAY)

	CO	NMHC	NOx	PART
Project	0.18	.015	.019	.004
BAAQM District				
Vehicle	1430	142	183	351
Total	2160	532	486	708
Santa Clara County				
Vehicle	24%	12%	14%	12%
Total	26%	24%	18%	23%

residential receptors in the vicinty of the project site to a significant level. This is because project traffic volumes will be distributed on a number of access roadways in the area, while average emissions per vehicle continue to be reduced, as newer vehicles with superior emission controls replace older vehicles. In addition, the completion of the Guadalupe Freeway connection is expected to divert some local traffic and relieve associated congestion, which will reduce emissions and CO concentrations near local arterials, particularly near Receptor 1.

Background concentrations are the combined result of vehicular emissions from all roadways in the project area. This was based upon BAAQMD Assessment Guidelines. The total CO concentrations under stagnated atmospheric conditions are the sum of local background plus the modeled concentrations, which would not appear to cause the State ambient standards to be exceeded, with or without the proposed project.

However, some simplifications are made by the modeling procedure, one of which is to assume a constant lower-speed traffic flow during PM peak hour conditions, rather than stop-and-go cycles. At some congested intersections, emissions could be higher than modeled. In addition, under severe atmospheric stagnation which occurs a few times a year (i.e., near-zero wind speeds and a very low atmospheric inversion, which cannot be modeled in a straight-forward fashion), ambient standards could be exceeded. To the extent that the proposed project events coincide with these stagnation periods, the project would contribute to increased local CO concentrations at a time when ambient standards are exceeded throughout the South Bay region.

Therefore, although there could be events and conditions where emission standards would be significant, the cumulative impact of emissions on air quality from the proposed project would be less than significant.

4. Total Project Emissions

Another way of assessing potential impacts is to estimate the total daily project-related vehicular emissions. The proposed arena facility will not have a consistent "daily" contribution, but an event could occur a few times per week. Total emissions are computed by considering emissions associated with the 6,500 project trips with an average trip length of 10.6 miles. Table A-21 is a comparison of total emissions for the four main pollutants.

Emissions are converted to tons per day to relate them to the estimated total District vehicular emissions under Year 1995 conditions. Santa Clara County emissions, as a percent of District emissions, also are tabulated for comparison (ABAG, 1982).

The total project emissions would have a nonsignificant impact on the environment.

5. Relationship of Project to District Air Quality Plan

The 1982 Bay Area Air Quality Plan presents the policies and methods adopted for meeting the mandated National Ambient Air Quality Standards in the San Francisco Bay Area. The recommended policies in the plan which would be most relevant to reviewing agencies and individual projects are designated

"Transportation Control Measures," acknowledging the primary role vehicles play in the air quality control problems and their solutions.

6. Parking-Related Air Quality Impacts

In addition to the emissions generated by the arena patrons driving to and from the proposed site, short-term emission incidents would be produced while the vehicles are entering and leaving the parking lots and/or garages, particularly while leaving. After an event, patrons leave essentially at the same time, with many vehicles idling while in queue to exit a parking lot or garage. This section discusses concentrations adjacent to the proposed parking areas and inside of the proposed parking garages, following an event.

Carbon Monoxide Concentrations Inside a Parking Garage

Idling motor vehicles within enclosed areas produce the most serious human exposures to CO. Examples include heavily traveled tunnels and relatively-closed parking garages. Even so, if traffic is evenly distributed to reduce large numbers of automobiles operating at the same time, high concentrations do not build up. Human exposure to CO is most severe in parking garages dedicated to scheduled events such as those proposed for this project, as opposed to more evenly distributed retail or commercial uses.

For the proposed three to four level, 800 vehicle parking garage, the following assumptions have been used:

- Size of interior garage level: 200 feet by 400 feet by 10 feet;
- Vehicles per level: 270;
- Vehicle time spent idling in garage: 15 minutes; and
- Air flow: 10 meters per minute.

An interior location at the "downwind" side of the garage would experience a CO concentration of 300 ppm, while the upwind side of the garage would experience basically ambient concentrations. For faster air flow through the garage, fewer vehicles operating at one time or shorter periods of idling (vehicles leaving the garage more quickly), the concentration would be proportionately lower.

The recommended one-hour exposure to CO is 20 ppm, to prevent elevated CO levels in the blood, which can cause temporary deficiencies in the ability to do physical and mental tasks, and may cause headaches. Although this type of exposure is not unique to the proposed parking garage for this project, the exposure should not be taken lightly even for infrequent exposure (for comparison purposes, cigarette smokers inhale 400 to 500 ppm concentrations of CO).

Open-architecture garage design promoting both natural convection and wind-driven ventilation would be a minimum recommendation. Additionally, patrons should use caution and closed windows in extended garage idling situations.

Parking Lot Idling Emissions

Assuming poor atmospheric conditions (one meter per second wind speed, a full lot of vehiles idling at once), the proposed surface parking area on the north side of Santa Clara Street would generate approximately 12 ppm concentration of

CO. When combined with the local background concentration of 12 ppm, this would exceed the ambient air quality standard for CO of 20 ppm. This would be considered a significant impact.

Horizon 2000 General Plan

The City's General Plan identifies the goal to maintain acceptable levels of air quality for the residents of San Jose. This project would conform to the goals and policies for air quality identified in the General Plan.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce adverse impacts.

In practice, the effectiveness of any mitigation measure is directly proportional to reductions in traffic flow congestion and to the number of drivers that are willing to give up single-occupant travel. Actual reductions in emissions vary between one to 15 percent, depending upon the measure. Clearly, the effectiveness of transportation alternatives is improved as the alternatives are made more attractive to motorists, relative to travel in single-occupant vehicles.

Mitigation thresholds for potential air quality impacts are described and classified by type of project in the BAAQMD Assessment Guidelines (1985). As stated, the proposed San Jose Arena project is below the Category C mitigation threshold for planning actions affecting any facility generating more 5,000 vehicles.

Measures relevant to the proposed arena facility, taken from the full-range of potential air quality mitigation measures described in detail in Section IX of the new BAAQMD Guidelines (1985), are summarized in the following paragraphs. The recommended mitigations should be given serious consideration for implementation by the City of San Jose prior to the commencement of construction of the proposed project. The recommended transportation-related mitigations should be considered by both the City of San Jose and Santa Clara County transportation planning agencies. These measures include:

- Bicycle and pedestrian pathways, safe bicycle routes and secure bicycle storage facilities at the proposed arena facility. **(Not Presently Included in Project)**

- Additional transit service, special bus routes and trains, transit stops, bus turn-outs and shelters, passenger amenities and special bus and carpool lanes should be provided wherever possible. **(Not Presently Included in Project)**

- Implementing traffic engineering changes which improve traffic flow, such as more lanes, turning lanes and signalization of intersections, as needed. An average vehicle speed of five miles per hour can achieve a 20 percent reduction in CO and hyrocarbon emissions. **(Not Presently Included in Project)**

- Achieving maximum efficiency through a properly designed site plan (for circulation purposes). **(Not Presently Included in Project)**

F. COMMUNITY NOISE

EXISTING SETTING

1. Existing Noise Levels

To determine the existing noise environment, continuous recordings of the sound levels were taken at three representative locations bordering the project site and four representative locations in the surrounding area (refer to Figure A-31). The measurement locations and recorded data are presented in Table A-22. The measurements were obtained on February 3 and 4, May 27, and June 2 and 12, 1987. The recordings were made with a Gen Rad Company Community Noise Analyzer, which yielded a series of descriptors of the sound levels versus time. The descriptors shown (i.e., L_{10}, L_{50}, L_{90}) indicate those levels which have been exceeded 10 percent, 50 percent and 90 percent of the time. Also shown are the minimum and maximum levels, and the continuous equivalent level (L_{eq}).

In addition to these measured levels, the day-night level (L_{dn}) and the Community Noise Equivalent Level (CNEL) are shown for the three measurement locations near the proposed arena facility. The L_{dn} and CNEL are the 24 hour noise descriptors used by the City of San Jose and the Santa Clara County Airport Land Use Commission (ALUC), respectively, to define community noise levels. Weighting factors are applied for the evening and nighttime periods to account for an increased sensitivity to noise during these hours.

The measurements at the three arena locations and along Coleman Avenue were made for a total period of three hours at each location, with two hours measured in the daytime period and one hour measured in the evening or nighttime period. The three off-site locations were measured for one hour each in the evening period, when weekday arena traffic would be most likely to impact the residential areas.

The existing noise environment at the project site is controlled by roadway traffic, Southern Pacific Railroad passbys and aircraft approaching the San Jose International Airport. Roadway traffic noise impacts are concentrated in the vicinity of Julian, Santa Clara and Stockton Streets. Railroad noise impacts are due to the train sources on the main-line tracks adjacent to the westerly edge of the project site. These rails are utilized by CalTrain commuter service, Amtrak passenger trains and Southern Pacific Railroad freight trains. Aircraft landing at the International Airport follow a flight line directly over the site, producing noise levels of 65 to 67 dB CNEL (Pack and Associates, 1987).

The calculated Ldn/CNEL values shown in Table A-22 reflect noise produced by all of the above-described sources, either singly or in combination, depending on the proximity of the measurement location to each source. Adjustments were included for average roadway, railroad and aircraft traffic conditions.

Based upon this information, the calcualted L_{dn}/CNEL values revealed existing noise levels at the project varying from 66 to 71 dB. The highest L_{dn}/CNEL occurs at the Julian Street location, and the lowest L_{dn}/CNEL occurs at the Santa Clara Street location. The higher values at the Julian and Stockton Streets locations reflect their proximity to aircraft flight lines and the Southern Pacific Railroad right-of-way, respectively. In areas surrounding the project site, the

NOISE MEASUREMENT LOCATIONS

FIGURE A-31

TABLE A-22

NOISE LEVEL MEASURES AT THE PROPOSED

PROJECT SITE AND ENVIRONS

Location and Time Period	Sound Levels, dBA					
38 ft. from the C_L of Stockton Avenue, 500 ft. North of The Alameda:	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}
3:00 - 4:00 pm	87	67	60	64	47	64
4:00 - 5:00 pm	94*	68	62	54	49	65
9:00 - 10:00 pm	80	69	60	54	50	65
The L_{dn}/CNEL is 69 dB						
40 ft. from the C_L of Julian Street, West of the Guadalupe River:						
5:00 - 6:00 pm	91	73	65	59	51	70
6:00 - 7:00 pm	89	74	67	59	49	72
8:00 - 9:00 pm	94*	66	54	48	46	68
The L_{dn} is 71 dB						
45 ft. from the C_L of Santa Clara Street, West of Delmas Avenue:						
10:00 - 11:00 am	79	70	64	59	53	67
11:00 am - 12:00 noon	99**	71	64	59	51	72
8:00 - 9:00 pm	87	67	60	57	54	66
The L_{dn}/CNEL is 66 dB						
42 feet from the C_L of Coleman Avenue, Opposite Hobson Street:						
3:00 - 4:00 pm	96**	76	67	57	51	73
4:00 - 5:00 pm	90	75	68	57	51	72
10:00 - 11:00 pm	87	68	56	50	45	67
The L_{dn} is 75 dB						

TABLE A-22 (Continued)

Location and Time Period	Sound Levels, dBA					
At the Edge-of-Pavement of Hanchett Avenue, East of Tillman Avenue:	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}
8:00 - 9:00 pm	81	57	50	45	41	57
At the Edge-of-Pavement of Hanchett Avenue, East of Sequoia Avenue:						
8:00 - 9:00 pm	86	62	50	44	40	60
32 feet from the C_L of So. Montgomery Street:						
7:00 - 8:00 pm	91	71	62	55	48	68
At the Edge-of-Pavement of Martin Avenue, East of Sequoia Avenue:						
7:00 - 8:00 pm	83	57	46	42	39	65

Note: Highest maximum levels due to:

* Aircraft flyby
** Emergency siren

measured L_{eq} values vary from 58 to 68 dBA, with the highest level recorded at the South Montgomery Street location, and the lowest level recorded at the Hanchett Street location (Pack and Associates, 1987).

Maximum intermittent noise levels (L_{max}) from aircraft sources recorded at the project site are up to 94 dBA, with the highest maximum from an aircraft fly-over recorded at the Julian Street location. Higher maximum noise levels shown in Table A-22 are from emergency vehicle sirens (Pack and Associates, 1987).

2. Noise Standards

The noise compatibility standards for public buildings and recreational uses, including arenas, are contained in the Noise Element of the City of San Jose General Plan. The City's acceptable noise level objectives are 55 Ldn as the long-range exterior noise quality level, and 45 Ldn as the interior noise quality level, and 76 Ldn as the maximum exterior noise level necessary to avoid significant environmental effects.

The project site is also located within the 65 dB/CNEL contour for aircraft noise from the San Jose International Airport, and thus falls under the jurisdiction of the Santa Clara County ALUC. This agency makes recom-mendations and sets policies for development within areas impacted by aircraft operations. The ALUC land use compatibility guidelines for recreational land uses, including arenas, specify a level of up to 60 dB CNEL as "satisfactory, and areas of 75 dB CNEL or higher to be avoided for these uses (unless specifically related to airport service). The ALUC guidelines also specify a maximum intermittent interior noise level of 75 dBA for sports arenas.

POTENTIALLY SIGNIFICANT IMPACTS

Project-generated noise impacts with regard to the proposed arena facility involve increased traffic flows on the roadways surrounding the site, noise from inside the arena and the construction-phase noise impacts, as discussed below. Also discussed are traffic noises impacting the proposed arena facility.

1. Traffic Noise

Project-generated traffic noise impacting the area surrounding the proposed arena facility will be created when the arena is in use. Increases in roadway traffic due to the arena use would occur mostly for peak periods of 45 minutes to one hour during the evening and nighttime hours (4:00 PM to 12:00 midnight), and on the weekends, which will be referred to herein as arena peak hour traffic. These impacts will also be considered in context of the L_{dn} and CNEL (i.e., over a 24 hour period) in relation to existing and future roadway, railroad and aircraft sources.

By Year-1991, when the arena facility is completed, railroad operations on the Southern Pacific Railroad right-of-way main line are expected to remain the same or increase slightly over existing volumes. By Year-2000, up to 66 commuter trains and three freight trains would be utilizing the main line near the project site (Schatmeier, 1987). Aircraft noise levels are expected to remain the same as existing levels or decrease through the Year-2000 (Slowinsky, 1987).

Increases in roadway traffic noise are estimated for both Year-1991 and Year-2000 conditions by comparing Average Daily Traffic (ADT) volumes for these years against the existing ADT.

Increases in the calculated L_{dn}/CNEL from all three traffic sources for both Year-1991 and Year-2000 conditions are shown in Table A-23. The existing levels are also given for comparison. The future levels are given with and without the proposed arena facility and are kept separate in order to evaluate the contribution from the arena traffic alone. Although roadway traffic volumes increase significantly, the resulting L_{dn}/CNEL levels due to roadway, railroad and aircraft sources do not increase significantly over existing levels.

The locations shown in Table A-23 correspond to the measurement locations shown in Table A-22, except for Riverfront Road, which is shown for Year-2000 only (when the roadway will be completed).

The impact created by the increases in the future levels over existing levels can be assessed using the following criteria developed by the U.S. Environmental Protection Agency. Based on these criteria (refer to Table A-24), it is evident that the noise level increases will have a nonsignificant impact on the surrounding areas of the proposed arena facility, whether due to general traffic increases or to project-generated traffic.

In addition to the above evaluation, which is in terms of the 24 hour noise analysis, the arena peak hour traffic noise impacts must be considered. While the L_{dn}/CNEL impacts will be minimal, the traffic increases during the times when the arena facility is being used may create significant noise level increases, especially during the quieter evening and nighttime hours. These predicted increases in the noise levels during the periods when the arena facility would be in use are shown in Table A-25. As presented in the table, arena traffic would generate noise levels up to seven dBA higher than non-arena traffic levels at some locations. In reference to the noise impact criteria given above, the arena traffic noise levels would impact (i.e., 7 to 14 dBA increase) the Julian Street measurement location (refer to Table A-24).

As shown, when compared with the L_{dn}/CNEL noise level increases in Table A-23, it is evident that the arena peak hour traffic noise impacts will be more noticeable than the daily average impacts. Therefore, the increased noise levels, in terms of peak hour traffic, is an unavoidable impact.

Impact to Adjacent Uses

Two other factors that must be considered are the noise level impacts in reference to the applicable standards, and the impacts in terms of the types of land uses that will be affected.

The project site and the general area surrounding it are already subject to high noise levels, even for commercial and industrial land uses. Accordingly, any increase over the existing ambient levels would add to an existing excessive noise environment. Even though the noise standards apply only to new development, they provide a good general indication of compatible noise levels for existing land uses as well. Consequently, any development located along major thoroughfares, whether existing or proposed, would be impacted by the arena traffic noise.

TABLE A-23

ROADWAY, RAILROAD AND AIRCRAFT TRAFFIC NOISE LEVELS FOR EXISTING AND FUTURE CONDITIONS, WITH AND WITHOUT THE PROPOSED ARENA

	Noise Levels, (dB L_{dn}/CNEL)				
		Year 1991		Year 2000	
Location*	Existing	w/o Arena	w/Arena	w/o Arena	w/Arena
Julian Street	71	72	72	74	74
Santa Clara Street	66	67	68	67	67
Coleman Avenue	75	75	75	77	77
Stockton Street	69	71	71	68	68
Riverfront Road (future only)	--	--	--	67	68

*Locations correspond to measurement location in Table A-22.

TABLE A-24

PREDICTED IMPACT FROM INCREASE OVER EXISTING NOISE LEVELS

Increase in Levels	Assessment	Expected Response
Less than 6 dBA	No Impact	Little comment or individual reaction
6 to 14 dBA	Some Impact	Some individual comment and reaction, no group action is likely
More than 14 dBA	Great Impact	Strong individual comment and group action

Source: U.S. Environmental Protection Agency

TABLE A-25

NOISE LEVEL INCREASES FOR MEASUREMENT

LOCATIONS DURING ARENA PEAK HOUR TRAFFIC PERIODS

Location	Noise Level Increases, dBA	
	Year: 1991	2000
1. Julian Street	3 - 7	2 - 5
2. Santa Clara Street	5 - 6	4 - 5
3. Coleman Avenue	2 - 3	1 - 2
4. Stockton Street	0 - 1	decrease
5. Hanchett Street	2 - 3	1 - 2
6. Martin Avenue	0	0
7. S. Montgomery Street	0 - 6	0 - 2

The area surrounding the project site is mostly designated for commercial and industrial land uses, which are usually exposed to higher noise levels than residential areas and, thus, are more tolerant of noise level increases. Therefore, the impacts on these areas would not be significant, especially when considering the arena traffic impacts would occur at night and on weekends, when many of these uses are inoperative.

There is also an area of residential land use along The Alameda that would be impacted by project traffic. Two residential roadways (Hanchett Street and Martin Avenue) have been included in the evaluation for Table A-25, which indicates that increases for Hanchett Street of two to three dB in the ambient noise level could occur during the periods of heavy arena traffic. Based on the impact table, noise level impacts on these residential roadways is expected to be minimal. However, the actual traffic flows using these residential roadways is difficult to project with any accuracy, using available modeling techniques (Lu, 1987). For the purposes of this analysis, it is assumed that most of the arena traffic would use the major thoroughfares for ingress and egress to the arena facility, thereby leaving most residential roadways with little arena traffic.

The level of service for some of the intersections may become congested during periods of heavy arena traffic. As a result, some vehicles may try to bypass the main traffic flow by using parallel residential roadways. This would in turn create noise impacts along these roadways at temporary and/or intermittent levels. Accordingly, the noise level impacts, in terms of adjacent residential uses, would create temporary impacts, and therefore be considered less than significant impacts.

Arena Sound Impacts

The preliminary site plan for the project site shows an arena facility with a floor area of approximately 160,000 square-feet. With a floor-to-ceiling height of approximately 70 to 80 feet, the total volume of the arena would be in the range of 11,200,000 to 12,800,000 cubic-feet. Arenas of this size fall into the "large" category, and require large speaker systems capable of handling several thousand watts of audio power. Typical audience area noise levels of 110 dBA will be created at these times. Thus, the potential for disturbance will exist in the areas surrounding the proposed arena.

If a pneumatic structure, utilizing a flexible outer skin supported by air, were used, sound insertion losses of 25 to 30 dB are attainable, depending on the fabric. Various types of coated fabrics have been used with weights ranging from 400 to 3,700 grams per square meter. Material surface weights of this range will yield sound attenuation of 25 to 30 dB at 500 Hertz sound frequencies. Thus, arena interior sound levels of 100 dBA would be reduced to 80 to 85 dBA in the near field, and to 60 to 65 dBA at 500 feet distances.

An arena roof of fixed design would reduce noise by a minimum of 30 dB for roof surface weights of 1.0 pounds per square foot or more. Thus, arena interior noise levels would be reduced to 80 dBA in the near-field and 60 to 65 dBA at a distance of 500 feet. Such roofs and wall structures will be adequate for reducing noise escape from the arena. However, noise intrusion from aircraft sources has low frequency components and this factor must be considered in the design of the arena with a solid roof shell. The noise generated from arena sound impacts would have a nonsignificant impact by the City of San Jose's General Plan standards for both the short- and long-term.

Construction Phase Impacts

During the construction phase of the proposed project, high noise levels in the site vicinity may temporarily be created. The site preparation and construction phases will generate sound levels ranging from approximately 70 to 90 dBA at 50 foot distances from heavy equipment and vehicles. The construction vehicles and equipment generally are diesel-powered and produce a characteristic noise which is primarily concentrated in the lower frequencies. Engine noise typically predominates, but additional noises originate from fans and transmission systems.

The total noise energy impacting a receptor point is dependent on the work phases of the construction process, on the distance, and on the angle subtended by the work processes at the noise receptor locations.

The powered equipment and vehicles act as point sources of sound which will diminish with distance over open terrain at the rate of six dBA for each doubling of the distance from the source. For example, the 70 to 90 dBA equipment peak noise range at 50 feet will reduce to 64 to 84 dBA at 100 feet, and from 58 to 78 dBA at 200 feet. Therefore, during the construction operations, sound level increases of up to 20 dBA due to these sources could occur near the project boundaries. These impacts would be the most severe along Santa Clara Street, as the proposed arena would be located approximately 100 feet from that roadway.

Noise impacts associated with the constructuion of the proposed arena facility would have temporary, unavoidable impacts on the surrounding areas.

2. Noise Impacting the Proposed Project

In reference to the standards of the City of San Jose's Noise Element and the Santa Clara County ALUC, location of the proposed arena facility on the project site would result in exposure of a publicly-used building to excessive levels of noise. Levels measured at or near the project site resulted in L_{dn}/CNELs of up to 71 dB, and maximum noise levels of up to 94 dBA were recorded for aircraft overflights. In general, noise levels of 60 to 70 dB L_{dn}/CNEL are common over the entire site. Under the City of San Jose's standards, placement of the arena facility in this location would be "acceptable with restriction" (i.e., locating the arena at the site is acceptable on the condition that noise control measures are incorporated into the design). Under the ALUC standards, an arena in this location would be a "cautionary" land use, also indicating that acoustical measures need to be considered in the building design. In addition, maximum noise levels of 94 dBA from aircraft would result in a 19 dBA excess over the recommended maximum interior level of 75 dBA. Noise levels up to 85 dBA (maximum) from the Southern Pacific Railroad right-of-way would also impact the site.

Depending on the noise attenuation measures designed into the proposed arena facility, these impacts could be considered significant.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce adverse noise impacts identified in this analysis.

1. Project-Generated Noise

Traffic Noise Impacts

Some form of mitigation, such as the use of temporary barricades to block non-arterial residential roadways, may help to reduce traffic flows into these areas and maintain the concentration of noise impacts along the major thoroughfares, where their impact is not likely to be as severe. **(Included in Project)**

Arena Noise Emission Mitigation

A solid roof structure (i.e., made with roofing materials having a surface density of 1.0 pounds per square foot on a rigid framework) would provide the most noise shielding for the surrounding areas, and would thus be the more favorable alternative. **(Included in Project)**

It is also recommended that any openings in the arena structure, such as windows, ventilation shafts or skylights, be designed as controllable openings, so that they are acoustically-effective during periods when the arena is in use, and interior-to-exterior sound transmission can be kept to a minimum. **(Included in Project)**

Implementation of these mitigation measures would reduce the noise impacts generated by the proposed arena facility to an nonsignificant level.

2. Mitigation of Noise Impacts on the Arena

A roof design of adequate mass with controls on any openings is required to achieve compliance with the standards. The following measures are recommended to achieve maximum noise control for the arena facility:

- The arena should be designed to achieve a minimum building shell insertion loss of Sound Transmission Class (STC) 30. This rating applies to roof, walls, windows, doorways and all other building shell elements providing a barrier for exterior-to-interior noise transmission. **(Not Presently Included in Project)**

- No permanent, significant openings should be included between the exterior and interior seating spaces. Thus, some form of mechanical ventilation should be provided. Windows, which may be operable, and doorways should provide the STC 30 rating in the closed position. These elements should be maintained closed when the arena facility is in use. Vestibules may be used for doors requiring more direct access to the exterior. **(Not Presently Included in Project)**

  Implementation of these mitigation measures would reduce the noise impact upon the area surrounding the project site to a less than significant level. Additionally, it would minize the intrusion of noises generated from exterior sources (i.e., aircraft, trains).

3. Construction Noise Mitigation

Mitigation of the construction phase noise at the project site can be accomplished by using quiet or "new technology" equipment. The greatest

potential for noise abatement of current equipment is the quieting of exhaust noises by use of improved mufflers. Therefore, it is recommended that all internal combustion engines used at the project site be equipped with a type of muffler recommended by the vehicle manufacturer. In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly-maintained engine, drive-train and other components. In any event, there would be increased noise levels at various times during the construction phase of this project. **(Not Presently Included in Project)**

In addition to the source-emission controls, mitigation of construction noise can also be achieved by scheduling noisy operations for the daytime hours of 7:00 AM to 7:00 PM. This would avoid the more noise sensitive evening and nighttime hours. **(Not Presently Included in Project)**

A noise reduction benefit can also be achieved by appropriate selection of equipment utilized for various operation, subject to equipment availability and cost considerations. Noise levels should be a consideration in the selection of construction equipment and methods. **(Not Presently Included in Project)**

Even with the incorporation of these mitigation measures, noise impacts from construction activities would still be a temporary, unavoidable impact.

4. Other Mitigation

The proposed arena facility should comply with the Airport Vicinity Area Plan for interior noise levels. **(Included in Project)**

An avigation easement should be dedicated to the City of san Jose in compliance with the Airport Vicinity Area Plan. **(Included in Project)**

Implementation of these measures would reduce the noises impacting the arena facility to a less than significant level.

G. GEOLOGY AND SOILS

EXISTING SETTING

1. Geologic Setting

The project site is located in the Santa Clara Valley between the base of the western foothills of the Hamilton-Diablo Mountain Range and the northeasterly foothills of the Santa Cruz Mountains in the Coast Range Geomorphic Province of Central California. Bedrock in this area is the Franciscan Complex, a diverse group of igneous, sedimentary and metamorphic rocks of Upper Jurassic to Cretaceous age (70 to 140 million years old). These rocks are part of a northwesterly-trending belt of material that lies along the east side of the San Andreas Fault system, which is located approximately 11.5 miles southwest of the project site. Geologic cross-sections of the area contained in the California Department of Water Resources Bulletin No. 118-1 (1975) indicated that the depth to bedrock in this area is in excess of 600 feet.

The Franciscan rocks are overlain, in this area, by marine and non-marine sediments of Cretaceous to Plio-Pleistocene age (80 to two million years old), which are, in turn, covered with alluvial, fluvial, lacustrine and bay deposits of Pleistocene to Holocene age (less than two million years old).

The regional geology has been mapped by Davis and Jennings (1954), Nilsen (1972), Rogers and Williams (1974) and Helley and Brabb (1971). These maps differ in scale and detail, but they generally agree that the site is underlain at the surface by fine-grained non-marine sediments of undetermined depth. The latter two references divide the materials on the project site into fluvial deposits from the edge of alluvial fans (fine sand, silt and clay), and interfluvial basin deposits (organic and silty clay). This latter unit is shown as a thin band along the westerly end of the project site.

The U.S. Department of Agriculture (1968) has mapped three agricultural soils on the project site. The three soil types lay in broad, northwesterly-trending bands, roughly parallel to the Guadalupe River. The Sunnyvale silty clay lies on the westerly side of the site. This soil has an effective depth of 60-inches and a high shrink/swell potential. The remainder of the project site is occupied by two members of the Campbell silty clay loam, which has an effective depth of 36- to 60-inches, and a moderate shrink/swell potential. The distribution of these materials on the project site is shown in Figure A-32.

2. Seismic Setting

None of the references studied showed a fault on the project site. Faults mapped in the site vicinity are shown on Figure A-33.

The closest fault to the project site is the Silver Creek Fault, which has been mapped approximately 1.8 miles northeasterly of the site (California Department of Water Resources, 1963). Davis and Jennings (1954) and Rogers and Williams (1974) show the Silver Creek Fault to end at the northerly end of Silver Creek Canyon, approximately five miles southeast of the project site. This fault was first mapped by Crittenden (1951) and was described by him as a branch of the Calaveras Fault.

Jennings (1975) shows the Silver Creek Fault to be a "Quaternary" fault, or one that has displayed movement between 200 and 2,000,000 years ago. The Silver Creek Fault has been designated as a potentially-active fault by Cooper-Clark and Associates (1974) and the Santa Clara County Planning Department (1975). Helley and Brabb (1971) show undisturbed Quaternary sediments in the valley across the projected trace of the Silver Creek Fault.

The Evergreen Fault has been mapped approximately 5.4 miles northeast of the project site, near the base of the hills (Rogers and Williams, 1974; Dibblee, 1972). This fault is shown by Jennings (1975) to be "Quaternary." Cooper-Clark and Associates (1974), Rogers and Williams (1974) and the Santa Clara County Planning Department (1975) show this fault to be potentially active.

In 1978, Berlogar-Long and Associates conducted a study of the Mirassou Winery property (located southeast of the project site), during which they trenched across the mapped trace of the Evergreen Fault. No evidence of faulting was found along the trace mapped by Dibblee (1972) and Cooper-Clark (1974).

Sv	SUNNYVALE SILTY CLAY
Cc	CAMPBELL SILTY CLAY LOAM, CLAY SUBSTRATUM
Ca	CAMPBELL SILTY CLAY LOAM
Ch	CLEAR LAKE CLAY
YeA	YOLO SILTY CLAY LOAM

SOURCE: Earth Systems Consultants

SOIL TYPES IN THE PROJECT VICINITY

N

0 3000
SCALE IN FEET

FIGURE A-32

ACTIVE FAULT

POTENTIALLY ACTIVE FAULT

EARTHQUAKE EPICENTERS OF MAGNITUDE
0.5 OR GREATER (1969-1970)

SOURCE: Earth Systems Consultants

REGIONAL FAULT MAP

N

0 5
Scale in Miles

FIGURE A-33

Approximately 900 feet east of Dibblee's trace, one of Berlogar-Long's trenches exposed geologic features that were interpreted by them as indicative of faulting. The "East Evergreen Fault" was zoned under the provisions of the Alquist-Priolo Special Studies Zones Act, based on Berlogar-Long's 1978 reports.

The Special Studies Zone originally established on the Evergreen Fault followed the traces mapped by Dibblee (1972), and has subsequently been removed from the most recent maps. Further exploration of that site by Earth Systems Consultants (1984) failed to produce any evidence of active faulting along either the Evergreen or East Evergreen Faults.

The active Hayward Fault has been mapped approximately 6.8 miles northeast of the project site (Dibblee, 1972; Rogers and Williams, 1974; California Division of Mines and Geology, 1982). This fault is known to be creeping in Fremont (northeast of the site), and often acts as a water barrier. Ground rupture occurred along parts of the Hayward Fault from Warm Springs northerly during the earthquakes of 1836 and 1868 (Radbruch-Hall, 1974).

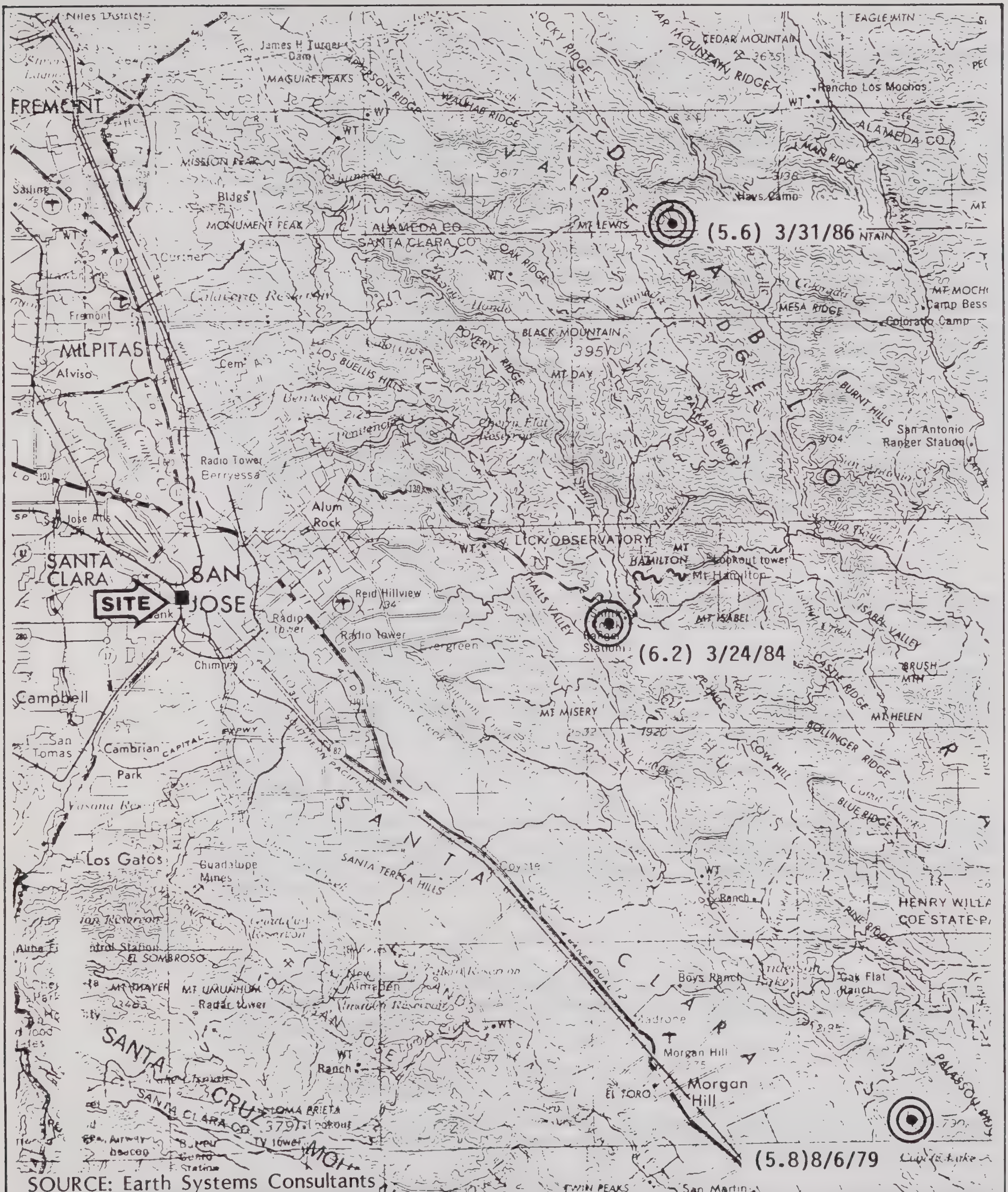
The Sargent-Berrocal Fault has been mapped 7.3 miles southwest of the project site. This section of the fault is considered to be potentially active.

The Calaveras Fault, located approximately 8.1 miles northeast of the project site, and the Hayward Fault, are both part of the regional San Andreas Fault system. The main trace of the San Andreas Fault is located approximately 11.5 miles southwest of the project site in the Santa Cruz Mountains. All three of these faults have been zoned by the California Division of Mines and Geology (1982).

A number of major earthquakes are known to have occurred in the vicinity of the project site. The October 8, 1865 earthquake (estimated Richter magnitude of 6.5) was centered on the San Andreas Fault, approximately 13-miles west of the project site. The epicenter of the October 21, 1868 event (estimated Richter magnitude of 7.0) has been located at a point approximately 14 miles northwest of the project site on a branch of the Hayward Fault. The epicenter of the earthquake of April 18, 1906 (Richter magnitude of 8.3), originally plotted in Olema, Marin County, has been relocated to a point in northern San Mateo County, approximately 38-miles northwest of the project site (Real, et al, 1978). The July 1, 1911 earthquake (estimated Richter magnitude of 6.6) is plotted as having occurred approximately eight miles southeast of the project site. The location of that epicenter is uncertain, and it has not been ascribed to movement on any particular fault. The 1979 Coyote Lake (Richter magnitude of 5.8) and the 1984 Halls Valley (Richter magnitude of 6.2) earthquakes were centered on the Calaveras Fault, approximately 27 and 12 miles east of the project site, respectively. The 1986 earthquake near Mt. Lewis (Richter magnitude of 5.3) was centered approximately eight-miles northeast of the project site and was not ascribed to a known fault (see Figure A-34).

The project site has been classified by Rogers and Williams (1974) according to its seismic hazard potential. The site is located within their zone D1-2, which includes areas in which the groundwater table is 10 to 20 feet below the surface, and where there is a high potential for seismically-induced liquefaction.

The map created for use in preparing the Santa Clara County Seismic Safety Plan (Seed, 1974) places the project site in the category of "Possible Liquefaction,



LOCATION OF EARTHQUAKE EPICENTERS	0 — 5 Miles	FIGURE A-34

Requires Investigation." This map indicates that the estimated characteristic period of the soil deposit is between 1.2 and 2.0 seconds.

The soils reports for two nearby projects were on file in the City of San Jose Public Works Department. The Applied Soil Mechanics (1987) report was prepared for a project on the southeast corner of West Julian and Montgomery Streets. Terrasearch (1974) prepared a report for a project across the Guadalupe River from the southeast corner of the project site.

Both reports found that there was a low to moderate potential for strength loss to occur in the sand layers that had been encountered during drilling. Applied Soil Mechanics determined that the layers encountered were too dense and contained too many fines to liquefy, and the hazard was further reduced because the sand lenses were thin and discontinuous. Also, no significant groundwater was encountered. Terrasearch found thicker layers of sand (up to 13-feet thick) between depths of nine and 20 feet below the surface. They also found a water table at or above these sand layers. The sand had a predominance of fines, the clay layers above were thick and the N values were reported to be greater than 16 blows per foot (the boring logs, however, have few "N" value notations). Terrasearch concluded that there was a low to moderate potential for strength loss to occur in the sands during a significant seismic event.

3. <u>Subsurface Exploration</u>

The subsurface exploration program at the project site consisted of two phases: 1) cone penetration testing; and 2) exploratory boring. The locations of the probes and borings were distributed to cover the entire site with a concentration around the proposed location of the arena and the proposed parking structure. The approximate locations of the probes and borings are shown in Figure A-35. Access to the project site during the subsurface exploration was restricted, and the field work was confined to City-owned rights-of-way.

4. <u>Subsurface Conditions</u>

Six major material types were identified during the field investigation. However, the soil profile underlying the project site is highly variable. Some of the materials are not present in some locations, and those present vary in thickness and location below the ground surface.

Unit 1

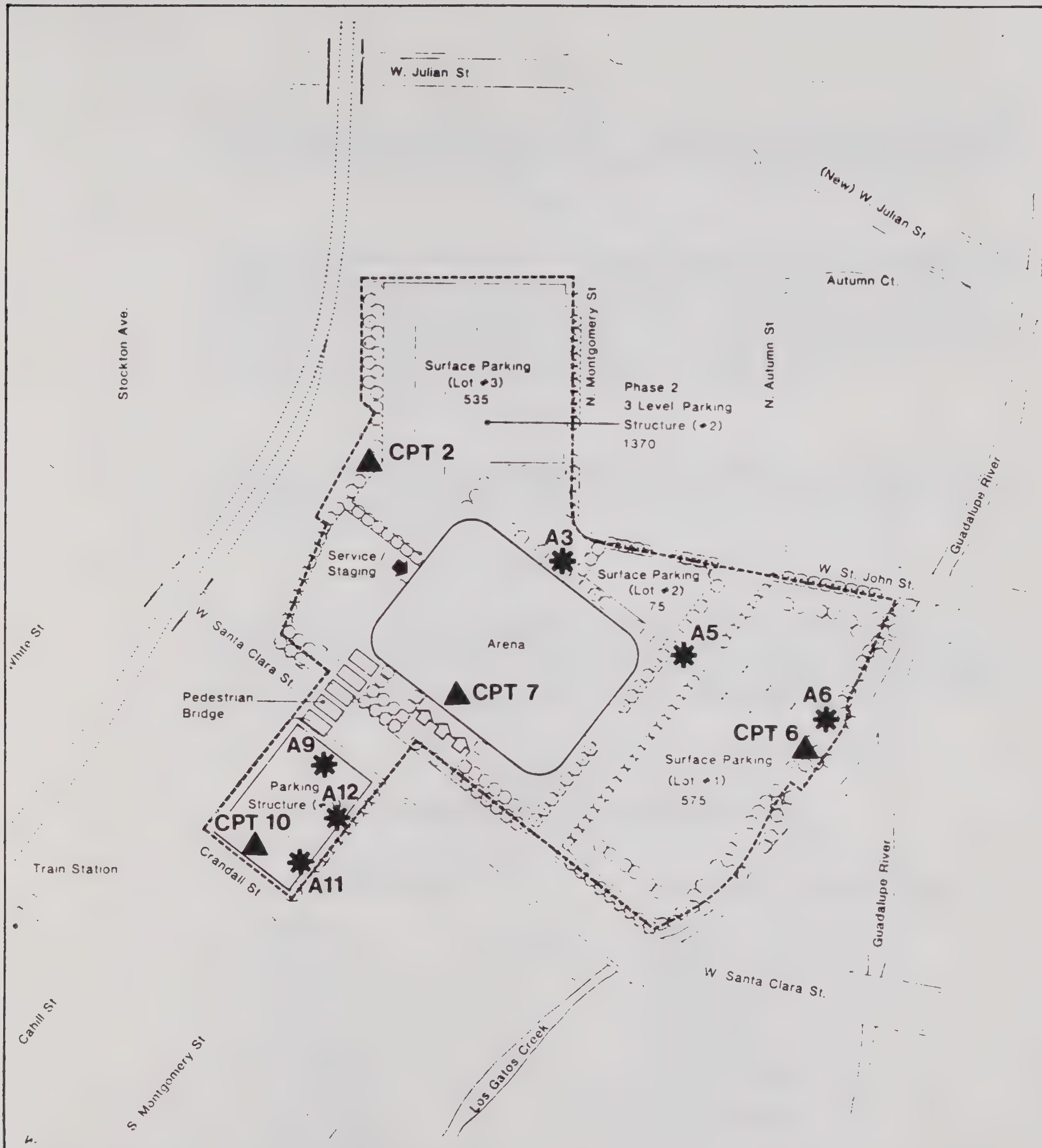
The uppermost unit on the project site is a miscellaneous fill. It varies in thickness from two to 11 feet, and contains silty clays, sandy silts, and sand with gravel and debris.

Unit 2

The uppermost natural soil unit is a dark grey, highly plastic clay. This unit varies in thickness from two to five feet, and is not present in some locations.

Unit 3

Below the highly plastic clay is a layer of light grey sandy clay with orange mottling. This unit is softer and less plastic than the overlying unit. Unit 3 varies in thickness from zero to 11 feet.



SOURCE: EARTH SYSTEMS CONSULTANTS (1987)

BORING

CPT PROBE

N

0 250 500 Feet

Approximate Scale

GEOLOGIC BORING AND PROBE LOCATIONS

FIGURE A-35

Unit 4

Beneath the sandy clay unit is a layer of tan silty sand. In one location, this material consists of predominantly fine to coarse gravel with a silty sand matrix. Unit 4 varies in density from loose to dense, and in thickness from four to 11 feet.

Unit 5

This unit consists of a blue-grey to dark grey, predominantly silty clay with some clayey silt and sandy clay. This material varies in consistency from softto very stiff. In the borings, this material was observed to vary in thickness from 10 to 23 feet. In the Cone Penetration Test (CPT) Probe 6, this unit appears to extend to a depth of 75 feet, and in the CPT Probe 10 to a depth of 66 feet. In several locations, this material is interbedded with Unit 4 material.

Unit 6

Four of the six borings at this project site terminated in Unit 6 material, which consists of fine to coarse gravel with a sand matrix. This material is dense to very dense.

Groundwater

The groundwater level was determined during the field exploration program to vary from 17 to 47 feet below the ground surface. The groundwater level was visible in three of the borings and was determined during two of the CPT probes by pausing and allowing the excess pore pressures generated by the probe to dissipate (refer to Table A-26).

TABLE A-26
DEPTHS OF GROUNDWATER ON PROJECT SITE

Boring/CPT Probe	Depth Below Ground Surfaces
Boring 3	18 feet
Boring 5	20 feet
Boring 6	17 feet
Boring 9	NGWEDD*
Boring 11	NGWEDD*
Boring 12	NGWEDD*
CPT Probe 2	Not Determined
CPT Probe 6	47 feet
CPT Probe 7	Not Determined
CPT Probe 10	47 feet

* No Groundwater Encountered During Drilling

Source: Earth Systems Consultants, 1987

Cone Penetration Test Probes 6 and 10 were at opposite ends of the project site, so it appears that the level of the regional groundwater table which these probes measured is relatively constant at the site. Borings 3, 5 and 6, which are near the Guadalupe River, encountered a perched groundwater table between 17 and 20 feet. The thickness of the perched groundwater table was not determined. No groundwater was encountered in Borings 9, 11 and 12. This indicates that if the arena is to be constructed with a 15 foot basement, only minor dewatering may be required during construction. It should be noted that these measurements were taken in late May, 1987. The rainfall during the previous winter was below average, and the groundwater level during construction may be higher.

POTENTIALLY SIGNIFICANT IMPACTS

1. Response of the Soils to Seismic Loading

Some of the soils at the project site may liquefy when subjected to seismic loading. Liquefaction is a phenomenon that occurs when loose, granular soils are subjected to strong ground shaking. Under these conditions, the granular soils will attempt to densify, resulting in the development of excess pore pressures which impede densification. If the pore pressures cannot dissipate as rapidly as they are generated, the soil behaves like a heavy, viscous fluid. Under these conditions, the soil will lose shear strength, and if the imposed shear stresses (due to structural loading, or the presence of a nearby slope) exceed the soil strength, the "liquified" soil will "flow." This can lead to slope or foundation failures. Where the soil is confined or there are no imposed shear stresses, no movement occurs except for some possible areal or local settlement.

If the soils are only partially saturated, there is no impedance to densification and, as a result, local and/or areal settlement occurs.

The susceptibility of the soils to liquefy depends on the degree of shaking to which they are subjected, the density of the soils, the amount of fine-grained material in the soils, the confining pressure (the depth below the ground surface) and the degree of saturation.

The potential ground shaking at this project site was estimated using the methods suggested by Seed and Idriss (1982). The site is located approximately 6.8 miles from the Hayward Fault (maximum probable earthquake M = 7.0), and 11.5 miles from the San Andreas Fault (maximum probable earthquake M = 8.3). It is estimated that the maximum probable earthquake on the Hayward Fault would cause 10 to 15 cycles of significant shear stress at the project site, with a maximum ground acceleration of 0.28 g. Significant shear stress is defined as two-thirds the maximum shear stress developed during the earthquake. It is estimated that the maximum probable earthquake on the San Andreas Fault would cause 20 to 25 cycles of significant stress, with a maximum ground acceleration of 0.24 g.

As previously stated, a perched groundwater table was observed across parts of the project site at a depth that ranged from 17 to 20 feet below the existing grade, but this groundwater was not encountered in other parts of the site. The regional groundwater table was measured with the CPT to be approximately 47 feet below ground level. The degree of saturation of the material between these

two levels is unknown. This is important because saturated soils are more prone to liquefy than partially saturated materials. However, partially saturated soils are more prone to densify under cyclic loading.

Table A-27 shows the location of the layers of potentially-liquefiable soils identified at the project site.

TABLE A-27
DEPTHS OF POTENTIALLY LIQUEFIABLE SOILS

Boring/CPT Probe	Depth to Potentially Liquefiable Soil
Boring 3	15 to 21 feet
Boring 5	12 to 16 feet
Boring 6	7 to 18 feet
Boring 9	---
Boring 11	---
Boring 12	---
CPT Probe 2	16 to 24, 42, 54 to 60 feet
CPT Probe 6	16 to 24, 42, 54 to 60 feet
CPT Probe 7	---
CPT Probe 10	42, 54 to 60 feet

Source: Earth Systems Consultants, 1987

2. Response of the Site Soils to Loads Imposed by the Structures

Compressibility

If the proposed arena is supported on a shallow foundation, the primary response of the site soils to the loads imposed by the proposed arena facility will be to compress and cause settlement. The compressible soils that will have the most impact on this project are the Unit 5 materials between the foundation footings and a depth of 40 feet (which is estimated to be the approximate limits of the zone of influence of the footing pressure). In the southwest corner of the project site, the compressible soils begin at the anticipated level of the foundations (17 feet) and extend to a depth of 32 to 40 feet below the surface. In other areas, such as at Borings 3 and 5 and CPT Probe 7, the depth of affected compressible material is only on the order of nine to 11 feet. The difference in the thickness of compressible soils below the arena will probably cause different amounts of settlement in various portions of the arena.

Initial estimates of the settlement and differential settlement that would occur indicate that they would be within tolerable limits for this type of structure, provided that the foundation acts as a unit.

Materials Able to Support Deep Foundations

Cone Penetration Test Probes 2, 6 and 10 indicate that there is a dense layer of granular material (Unit 6) underlying the project site at a depth of between 66 and 74 feet below the existing grade. The capacity of the CPT was reached on each of these holes, so the thickness of this layer was not determined. This layer of material would probably provide excellent bearing capacity for deep, end-bearing piles. Borings 3, 5, 9 and 11 and CPT Probes 2 and 7 indicate that there are intermittent, shallower layers of this material on the project site. The shallower layers could be a serious impediment to driving piles down to the lower granular material. In some areas, the shallower layers may be capable of supporting end-bearing piles.

3. <u>Suitable Foundation Types</u>

Suitable foundation types for the major and minor structures proposed for this project site are discussed below. Suitable foundations must be able to sustain seismic loading, settlement due to consolidation of the underlying soils, possible areal settlement of the underlying soils during an earthquake and the loads imposed by the proposed arena. In order to provide soil design parameters, additional site investigation work will be required.

Conventional Spread Footings

Conventional spread footings may be suitable for this project if the concourse portion of the structure is sufficiently rigid that the footings will act as a unit and not independently. The differential settlement of the footings that are able to act independently due to consolidation of the upper soils and the possible dynamic consolidation of the granular deposits during an earthquake will probably exceed tolerable limits for independent footings. Unitized, conventional spread footings may be suitable for minor one- or two-story, lightweight structures such as ticket sales offices.

Mat Foundation

If conventional spread footings cannot be adequately tied together, a unitized mat foundation may be a suitable foundation for the arena on this site. The primary advantage of this system is that the structure would respond as a unit to differential settlement of the underlying soils and could span any localized soft areas.

Compensated Foundation

The bearing capacity of the foundation could be increased and the amount of post-construction settlement decreased if a compensated foundation was constructed rather than a mat foundation. A compensated foundation is similar in form to a mat foundation, except that the depth of the foundation is increased. A fully compensated foundation is one in which the weight of the structure matches the weight of the soil that is excavated from the site. The depth of a compensated foundation may be restricted by the groundwater level because of the need to dewater.

Piles

Driven piles could be used to construct suitable foundations for the proposed structures on this site. The piles could be designed to develop bearing

capacity with skin-friction, or by end-bearing on the dense sands and gravels found below this site. Dense layers that may increase the difficulty of driving piles to the bearing layer were encountered in some locations.

Drilled Piers

If drilled piers are used at this project site, it is expected that the pier holes will need to be cased to prevent collapsing, and that drilling mud may be required to prevent the saturated silty sands from blowing into the bottom of the pier hole. Unless specific structures or installations that are susceptible to vibrations caused by pile driving are identified in the vicinity of the proposed arena and parking structure, drilled piers appear to be a less suitable foundation than driven piles.

4. Horizon 2000 General Plan

The City's General Plan identifies goals and policies for hazards to: 1) protect the community from the hazards of soil erosion, weak and expansive soils and geologic instability; and, 2) minimize the risk from exposure to seismic activity. The proposed project included measures to conform to the General Plan policies.

5. Suitability of Site for Development - Level of Environmental Impact

From a geotechnical viewpoint, this site is considered suitable for the proposed development, provided that measures are implemented during design and construction of the proposed project to mitigate the potential problems caused by the geologic and seismic conditions identified in this section.

Although a moderate to major earthquake on the Hayward, Calaveras, San Andreas or one of the other active faults in the Bay Area could produce severe ground shaking at this site, there is no evidence that an active or potentially active fault crosses the site. Accordingly, the potential for ground rupture to occur is considered to be low. Therefore, the proposed project would not have a significant impact on existing geotechnic conditions within the project boundaries.

MITIGATION MEASURES

The following are mitigation measures that would reasonably be expected to reduce the adverse geotechnic impacts identified in this analysis.

- The level of groundwater indicates that if the arena is to be constructed 15 feet below the existing grade, some dewatering may be required during construction. All arena facilities located below the existing grade should be watertight. **(Included in Project)**

- Potentially liquefiable soils were identified adjacent to the Guadalupe River at approximately the same elevation as the toe of the stream banks. The loss of shear strength in these materials during an earthquake due to liquefaction could cause slope failures. If facilities are to be constructed in this area, it is recommended that they be set back from the top of the bank or that an engineering solution be applied to stabilize the river bank. **(Included in Project)**

- Some of the loose, granular soils at this site may be expected to densify when subjected to strong ground shaking. This will result in local or areal settlement of the site. Near the Guadalupe River, where there is an open exposed face, some of the saturated granular soils may "flow" out of the slope, causing larger settlements near the river. Structures may be built near the river bank if measures are implemented to stabilize the banks; otherwise, structures should be set back from the top of the bank. **(Included in Project)**

- The recommendations regarding suitable foundation types are based on the limited site investigation that was described in the body of this section. This analysis is comprehensive enough to identify any adverse geotechnical conditions at the site and to determine which types of foundations would be suitable at this site. Further site investigation will be required in order to provide specific foundation design recommendations. **(Included in Project)**

- A structural engineer should be consulted to determine if the characteristic period of the site soils needs to be determined, and if a dynamic analysis of the site soils would be warranted. **(Included in Project)**

- Additional studies should include a detailed estimate of the expected settlement of the proposed arena. This estimate will require a preliminary layout of the arena columns and an estimate of their loads. This settlement estimate can be used to determine if a shallow foundation may be an acceptable foundation for the arena. **(Included in Project)**

- Additional studies should include a determination of the extent and thickness of the dense sands and gravels underlying this site to aid in determining whether deep foundations would be suitable for this site. **(Included in Project)**

H. HYDROLOGY AND DRAINAGE

EXISTING SETTING

The project site is located adjacent to the Guadalupe River and one of its tributaries, Los Gatos Creek. The Guadalupe River begins at the confluence of Guadalupe Creek and Alamitos Creek in the Almaden Valley (south of the project site), but its tributaries start in the Santa Cruz Mountains to the south and west. All of the watershed is within Santa Clara County. The Guadalupe River flows generally northwesterly through the City of San Jose and discharges into Coyote Slough approximately one and one-half miles east of the Coyote Slough discharge point to San Francisco Bay.

There are three reservoirs in the upper Guadalupe River watershed (Calero, Almaden and Guadalupe), with a combined capacity of 15,680 acre-feet. In addition, Lexington Reservoir (on Los Gatos Creek) has almost 27,000 acre-feet of storage. These reservoirs are operated for water supply purposes, but also provide some incidental flood control benefits due to peak flow attenuation within the reservoirs (Santa Clara Valley Water District, 1982).

The upland mountainous areas of the Guadalupe River have soils mainly of the Los Gatos, Gaviota, Vallecitos and Hayman associations. These soils range in depth from shallow to deep and are located on steep to very steep slopes. The vegetative cover includes grasses, oak, pine, brush and hardwood. The infiltration rate of water in these

upland areas is very slow. The upland soils have been classified to have a high to very high erosion potential, although sedimentation rates in the reservoirs have not been high in the past. This is probably due to the relatively undisturbed character of the upland portions of the watershed (Santa Clara Valley Water District, 1982).

The soils of the lowland valley and foothill areas are of the Arbuckle, Zamora and Pleasanton associations, with depths varying from shallow to moderately deep. In general, the soils drain relatively well. The lowland soils are classified as having none to slight erosion potential and have a moderate water infiltration rate. Some erosion has occurred in the stream channels and banks during periods of high runoff (Santa Clara Valley Water District, 1982).

The upland portion of the watershed has very little development at this time, and the Santa Clara County General Plan calls for only nominal development in the future, with the majority of the area being designated for open space. The valley floor, which has been actively developed in the past 30 years, includes residential subdivisions, shopping centers, and light industries and has the potential for additional development in the future by infilling vacant parcels and increasing development densities.

The project area has a relatively mild climate, with 90 percent of the annual rainfall occurring in the late fall and winter months. January is usually the month with the most rainfall. The annual mean precipitation within the watershed varies from a high of 68 inches in the Santa Cruz Mountains to a low of 15 inches in San Jose.

The Guadalupe River channel from Interstate 880 (formerly State Route 17) north to Coyote Slough was constructed in 1963 by the Santa Clara Valley Water District. The initial project was designed to provide 12,000 cubic-feet per second (cfs) channel capacity. Since that time, the channel has been improved to convey the 100 year design flood of 17,000 cfs (Santa Clara Valley Water District, 1982). The channel north of Interstate 880 is generally trapezoidal in cross-section with earthen levees. The channel banks and bottom are covered, in varying degrees, with several different types of vegetation, ranging from the typical fresh and saltwater marsh vegetation in the lower reaches to riparian woodland near Interstate 880.

The Guadalupe River channel upstream of Interstate 880 has not been improved for flood control purposes. The channel is incised below ground level without levees and generally has a parabolic cross-section. The channel maintains an extensive riparian woodland which has generally been undisturbed by the development adjacent to the channel.

The Guadalupe River was studied in 1979 as part of the Flood Insurance Study for the City of San Jose. The channel has an estimated minimum capacity of approximately 9,000 cfs downstream of the Los Gatos Creek confluence and a minimum capacity of approximately 7,000 cfs upstream of Interstate 280. Los Gatos Creek is similar to the Guadalupe River in character in the vicinity of the project site, but has sufficient capacity for the 100 year flood due to the attenuation effects of Lexington Reservoir (Federal Emergency Management Agency, 1986).

Based on the Flood Insurance Study, flooding from the Guadalupe River north of Interstate 280 would occur on the east side of the river, flowing as shallow flooding north through downtown San Jose toward North San Jose and Alviso. An additional overflow from the channel would occur north of the project site near Interstate 880, flowing on the westerly side of the channel through the San Jose International Airport and into the northerly portion of the City of Santa Clara.

Historically, the Guadalupe River has flooded frequently. Flooding was recorded as early as 1889 and major flooding occurred in 1911, 1941, 1945, 1952, 1955, 1958 and 1963. Most recently, localized flooding occurred near Alma Street (south of Interstate 280) in 1980, 1982, and 1983. The most extensive damage from the Guadalupe River flooding occurred in the 1958 flood, prior to the 1963 channel improvement project (Santa Clara Valley Water District, 1982).

The project site is fully developed under existing conditions and is predominately buildings, pavement, or impervious surfaces. There are existing storm drains along West Santa Clara, West Saint John, and West Julian Streets which drain easterly to Los Gatos Creek and/or the Guadalupe River. The project site is not within the 100 year floodplain as defined by the Flood Insurance Study (refer to Figure A-36).

IMPACTS

The project site does not lie within the existing floodplain and therefore does not have any potential flood hazard for any event up to and including the 100 year flood. In addition, the proposed project site will not block flood flows or affect the potential flood hazard on adjacent properties.

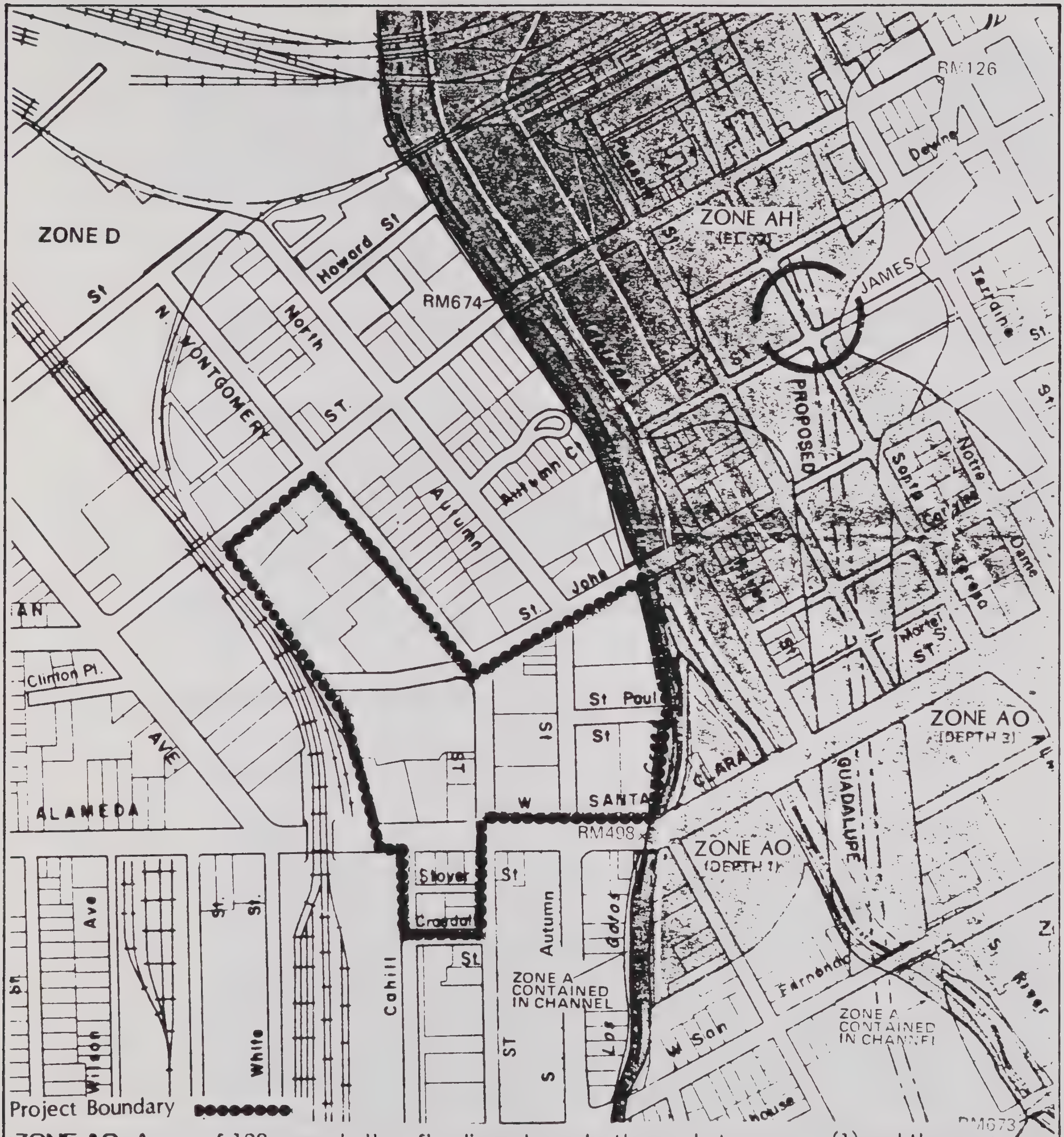
The proposed project would conform to the City's General Plan Horizon 2000 Hazards Goal and Policies to protect the community from the risk of flood damage. The proposed project includes mitigation measures that would reduce the impacts to an acceptable level by General Plan policies.

The project site is fully developed under existing conditions, and the proposed project will not increase the amount of impervious area on the site. Therefore, there should be no change in the amount of storm runoff from the project site. The landscaping to be included in the project may increase the pervious area from the limited landscaping currently existing with the industrial and commercial land uses.

The City of San Jose has proposed including a storm drain along the proposed Riverfront Road (Autumn Street). The proposed storm drain would flow easterly along Saint John Street and discharge into Los Gatos Creek. The City of San Jose has a three-year design standard for storm drains (Lee, 1987).

The proposed storm drain would increase the flow in Los Gatos Creek and the Guadalupe River downstream of the project site for three year events which exceed the capacity of the existing storm drain. However, the proposed storm drain capacity will be approximately 50 cfs, while the 10-year flood rate in the Guadalupe River is over 7,000 cfs. The increased flow due to the proposed storm drain would not make a perceptible change in the flow velocity or water surface elevations of the Guadalupe River.

The United States Army Corps of Engineers has proposed a flood control project for the Guadalupe River from Interstate 880 upstream to Interstate 280, which would involve channel improvements adjacent to the project site between West Santa Clara Street and the Los Gatos Creek confluence. The preliminary design for the Guadalupe River channel improvements involve widening the earthen channel on the east side in the reach upstream to West Santa Clara Street. The west channel bank and low flow channel adjacent to the project site would not be affected. No improvements are proposed for Los Gatos Creek as part of the channel improvements (U.S. Army Corps of Engineers, 1985).



ZONE AO: Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.

ZONE AH: Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.

SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY

100-YEAR FLOODPLAIN ZONES	N 0 500 Feet	FIGURE A-36

Construction on the project site may increase erosion from the site and result in sediment being deposited in storm drains and the Los Gatos Creek and Guadalupe River channels. The site is currently fully developed and has little or no sediment erosion under existing conditions. Construction practices which disturb the underlying soils may promote sediment erosion. However, the proposed project would not have a significant impact on the existing or proposed hydrology and drainage patterns for the project site and/or area.

MITIGATION MEASURES

The following are mitigation measures that are proposed that could reasonably be expected to reduce the identified adverse hydrology and flooding impacts identified in this analysis.

Potential sediment deposition in storm drains and channels can be mitigated by the use of appropriate construction practices. Scheduling necessary earthwork during the dry season will prevent most runoff erosion and watering exposed soils will limit wind erosion. Earthwork during the rainy season should be separated from the existing street gutters and storm drains through the use of ditches, berms, or filtration barriers such as hay bails. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the runoff is released from the project site. Roadways surrounding the construction area should be swept regularly to collect sediment deposited on the roadways before it is washed into the storm drains or channels. **(Included in Project)**

I. VEGETATION AND WILDLIFE

EXISTING SETTING

1. Vegetation

A reconnaissance of vegetation with in the project area was conducted in the months of February and July, 1987. The herbaceous and woody (shrub and tree) vegetation within the project site was dominated by non-native species planted and/or growing within existing developed areas, under-utilized parcels and City street landscaping. The herbaceous growth is composed of grasses of Italian ryegrass (Lolium perenne), knotgrass (Paspalum sp.), annual bluegrass (Poa annua), wild oat (Avena barbata), burmuda grass (Cynodon dactylon), ripgut brome (Bromus rigida) and fescue (Festuca sp.). Other herbs include milk thistle (Silybum marianum), filaree (Erodium sp.), common groundsel (Senecio vulgaris), Algerian Ivy (Hedera helix), Fennel (Foeniculum vulgare), yellow star thistle (Centaurea solstitialis) and field mustard (Brassica campestris). Common shrubs include pyracantha (Pyracantha sp.), coyote brush (Baccharis pilularis var. consanguinea) and small-flowered nightshade (Solanum nodiflorum).

Trees recorded on the project site were predominately non-native species. Trees growing within the project site include tree-of-heaven (Ailanthus altissima), English walnut (Juglans regia), eucalyptus (Eucalyptus sp.), deodar cedar (Cedrus deodara), wattle (Acacia melanoxylon), and sycamore (Platanus sp.). Thirty seven trees greater than four-inches in diameter were recorded on the project site. All trees greater than four-inches in diameter were recorded by species,

diameter (measured at 24-inches above grade), height class and whether the tree was on City or private property (refer to Table A-28). All but four of the trees are less than 18-inches in diameter. The four ordinance trees include two wattles (50- and 44-inches in diameter) and two deodar cedars (30-inches in diameter each). The location of each tree within the project site is shown on Figure A-37.

No rare, threatened or endangered plant species were observed during the field reconnaissances, nor have any been recorded in this area by the California Natural Diversity Data Base (1986). No heritage trees, as recognized by the City of San Jose, are located on the project site.

2. Wildlife

The project site was surveyed during the months of January and July, 1987, to assess wildlife use and habitat value. The site is composed primarily of urban industrial, commercial and land uses. The confluence of Los Gatos Creek and the Guadalupe River lies adjacent to the easterly boundary of the project site. Available habitat for wildlife species within these areas is, for the most part, limited to remnant grassy vacant lots and landscaped areas. Urban-adapted avian species such as the house finch, brown towhee and house sparrow feed and nest in the grassy areas. Mammalian species such as the pocket gopher, house mouse and raccoon forage and burrow in these same areas.

Wildlife that are present on the project site and in the project area is increased by the riparian habitat of Los Gatos Creek and Guadalupe River which lie adjacent to the southeastern edge of the site. A description of wildlife use of these riparian corridors may be found in the Environmental Impact Statement prepared by the U.S. Army Corps of Engineers for the channel improvements to the Guadalupe River. As permitted by Section 15150 of the CEQA Guidelines, the U.S. Army Corps of Engineers EIS is hereby incorporated by reference. The riparian habitat is dominated by willows (Salix spp.), cottonwood (Populus spp.) California box elder (Acer negundo var. californicum) with a lower story of shrubby willows, blue elderberry (Sambucus mexicana), and California blackberry (Rubus ursinus) such as curly dock (Rumex crispus), California mugwort (Artemisia douglasiansa), and poison hemlock (Conium maculatum), beneath and between the trees. This riparian habitat is used by several species of wildlife such as Audubon cottontail (Sylvilagus audubonі), fox squirrels, racoon (Procyon lotor), (Sciurus niger), common egret (Casmerodius albus), belted kingfisher (Megaceryle alcyon), barn swallow, (Hirundo rustica), red-shafted flicker (Colaptes cafer) and scrub jay (Aphelocoma coerulescens).

No rare, threatened or endangered vertebrate or invertebrate species were observed within the project site during the field reconnaissance, nor have any been recorded with the California Natural Diversity Data Base (1986).

POTENTIALLY SIGNIFICANT IMPACTS

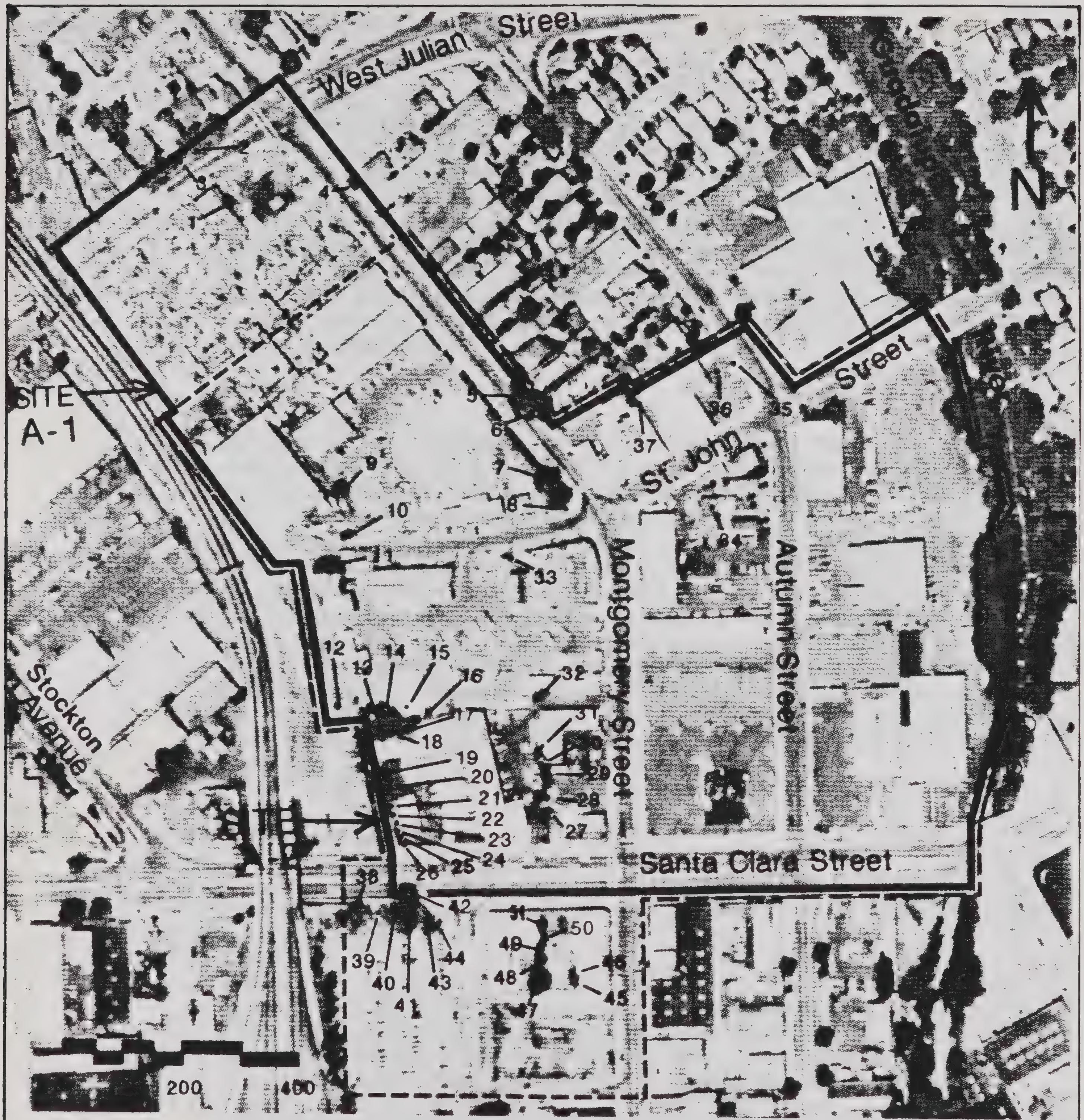
Impacts to vegetation and wildlife would result from construction of the proposed arena facility on the project site. The Majority of the project site is currently deisgnated for Combined Industrial/Commercial redevelopment by the Julian-Stockton Redevelopment Plan. The area of the site lying adjacent to Guadalupe River and Los Gatos Creek is planned for private urban and park development by the Guadalupe River Park Master Plan.

TABLE A-28

TREE SPECIES OBSERVED ON PROJECT SITE

No.	Botanical Name	Common Name	Dia. In.	Ht. Class	City/ Priv.
1.	Ailanthus altissima	Tree of Heaven	18	B	P
2.	Platanus sp.	Sycamore	18	B	C
3.	Platanus sp.	Sycamore	18	B	C
4.	Eriobotrya japonica	Loquat	18	A	C
5.	Acacia melanoxylon	Wattle	50	C	C
6.	Acacia melanoxylon	Wattle	44	C	C
7.	Cedrus deodora	Deodar Cedar	30	C	P
8.	Cedrus deodora	Deodar Cedar	30	C	P
9.	Ailanthus altissima	Tree of Heaven	18	B	P
10.	Ailanthus altissima	Tree of Heaven	18	B	P
11.	Ailanthus altissima	Tree of Heaven	18	B	C
12.	Schinus mollis	Peruvian Pepper Tree	18	A	P
13.	Ailanthus altissima	Tree of Heaven	18	B	P
14.	Ailanthus altissima	Tree of Heaven	18	B	P
15.	Ailanthus altissima	Tree of Heaven	18	B	P
16.	Ailanthus altissima	Tree of Heaven	18	B	P
17.	Ailanthus altissima	Tree of Heaven	18	B	P
18.	Ailanthus altissima	Tree of Heaven	18	B	P
19.	Ailanthus altissima	Tree of Heaven	18	B	P
20.	Ailanthus altissima	Tree of Heaven	18	B	P
21.	Juglans regia	English Walnut	18	B	P
22.	Juglans regia	English Walnut	18	B	P
23.	Juglans regia	English Walnut	18	B	P
24.	Juglans regia	English Walnut	18	B	P
25.	Juglans regia	English Walnut	18	B	P
26.	Juglans regia	English Walnut	18	B	P
27.	Eucalyptus sp.	Eucalyptus	18	B	P
28.	Eucalyptus sp.	Eucalyptus	18	B	P
29.	Eucalyptus sp.	Eucalyptus	18	B	P
30.	Ailanthus altissima	Tree of Heaven	18	B	P
31.	Eucalyptus sp.	Eucalyptus	18	B	P
32.	Fraxinus sp.	Ash	18	B	P
33.	Cedrus deodora	Deodar Cedar	18	A	P
34.	Citrus limonia	Lemon	18	A	P
35.	Pittosporum sp.	Pittosporum	18	A	P
36.	Ailanthus altissima	Tree of Heaven	18	B	P
37.	Ailanthus altissima	Tree of Heaven	18	B	P

Height Class: A = 10' B = 10 - 30' C = 30'+



LOCATION OF EXISTING TREES AND VEGETATION FIGURE A-37

1. Vegetation

The existing vegetation on the site would be removed by construction of the proposed arena. Depending on the site-specific plans for the proposed arena and its related support facilities (i.e., parking areas), there is a potential for the removal of 37 trees. The project does not propose development or construction activities that would impact the riparian vegetation of the Guadalupe River or Los Gatos Creek, both of which are located adjacent to the southeasterly edge of the site. Depending upon the specific site plans, the riparian vegetation could impacted as a result of increased foot traffic but this impact is not expected to be significant. Construction of the proposed arena would not result in significant impact to vegetation.

2. Wildlife

Construction and operation of the proposed arena facility, including the associated parking areas, would disturb or eliminate existing wildlife habitat. Depending upon the final design and location of the arena, lighting standards from the parking areas adjacent to Guadalupe River and Los Gatos Creek could affect nocturnal hunting predators such as the screech owl (Otus asio). Other birds that are active at night could also be affected by parking lot lighting in the area adjacent to the riparian corridor of Guadalupe River and Los Gatos Creek. The proposed arena facility parking lot lighting near Guadalupe River and Los Gatos Creek would not be substantially brighter or higher than the existing lighting in this area that are presently being used by an auto dealership and other commercial uses. The project impact upon wildlife would not be significant since the parking lighting will be similar to the existing lighting, and since wildlife habitat value of the existing vacant land and urban uses of the site is relatively limited.

MITIGATION MEASURES

The following possible mitigation measures are identified to minimize adverse vegetation and wildlife impacts associated with the construction and operation of the proposed arena facility.

The loss of vegetation and wildlife habitat value will tned to be reduced by retaining as many of the existing trees as possible through site design. When trees cannot be incorporated into the arena facility, their removal can be mitigated by replacing them, particularly large trees, with two, three or more young native trees where possible. **(Not Presently Included in Project)**

Vegetation and wildlife habitat impacts can be reduced by using native plant materials to as great an extent as possible (while achiving the desired aesthetic goals) since native wildlife is best adapted for native vegetation and therfore it provides the best and most productive wildlife habitat. Vegetation and wildlife habitat impacts are also reduced by using a diversity of plant materials including as many native species as possible. **(Not Presently Included in Project)**

Future impacts and disturbance can be avoided if the landscaping and other improvements of the arena parking facility in the area of the site to be used for the Guadalupe River Park (in the future) are consistent and/or compatible with the guidelines developed for the Guadalupe River Park Master Plan. This

includes the use of native plants and non-natives plants of high wildlife value in the landscaping plan, and a minimum buffer zone of 50 feet from the outside edge of the existing riparian vegetation or the top of the riverbank, whichever is greater **(Not Presently Included in Project)**

Impacts to riparian wildlife would be reduced or avoided by using parking lot and other lighting that is directed downward in the area of the site near Guadalupe River and Los Gatos Creek. Impacts to riparian wildlife can also be reduced or avoided by not placing lighting immediately adjacent to the riparian area. **(Not Presently Included in Project)**

J. URBAN SERVICES

EXISTING SETTING

The project site is located in an area of existing urban development with many existing services. Additionally, the City of San Jose implements Level of Service Policies to ensure that new development which contributes to the cumulative demand for services capacity is quantitatively estimated and appropriately mitigated.

1. Fire Protection

The project site is currently served by the City of San Jose's Fire Department. Station No. 7, located at 800 Emory Street, is the "first response unit" to service the project site. Station No. 7 is an engine company only with a minimum of five firefighters on duty at all times. The average response time from Station No. 7 to the project site is approximately three minutes. This is within the recommended response time set forth by the City of San Jose (Fujczak, 1987).

Station No. 1, located at 210 North Market Street, is the "second response unit" to the project site. Station No. 1 is both an engine company and a truck company with the truck company providing an 85-foot aerial ladder unit. Each of these units (the engine and truck companies) provide a minimum of five firefighters on duty at all times. The average response time from Station No. 1 to the project site is approximately three minutes. This is within the recommended response limits set forth by the City of San Jose (Fujczak, 1987).

The fire-flow pressure in the project vicinity is inadequate to meet the current demands. This is a result of the undersized lines that service the site (Overhouse, 1987).

The City of San Jose participates in a mutual aid program with the Cities of Milpitas and Santa Clara. Through this program, should the City of San Jose Fire Department need assistance in addition to its own units, one or both of the mutual aid cities would provide assistance to the City of San Jose in whatever capacity was needed (Fujczak, 1987).

2. Police Services

The project site is currently served by the City of San Jose's Police Department. Officers patrolling the project area are dispatched from the police headquarters,

located at 201 West Mission Street. The project site is located within Beat S-1 of the San Jose Police Department's service area. All of the roadways in the project area are under the jurisdiction of the San Jose Police Department. Major crimes in the area, in terms of frequency, are car clout, malicious mischief, and simple assault (Burde, 1987).

The San Jose Police Department cooperates in a mutual assistance program with the Santa Clara County Sheriff's Department, the Cities of Milpitas and Santa Clara and the California Highway Patrol (Burde, 1987).

3. Water Supply

The San Jose Water Company provides water to the project site. Currently, there is an existing 16-inch main in Santa Clara Street and a 12-inch main in Julian Street. There are several smaller lines scattered throughout the project site to serve the individual parcels.

4. Storm Drainage

The City of San Jose maintains an existing 54 inch storm drainage main in Julian Street and an 18-inch main in St. John Street. Additionally, there is a 10-inch line in Montgomery Street. The 18-inch line in St. John Street may be abandoned with the installation of a proposed line in West Santa Clara Street. This storm system adequately serves the project area which is fully developed under existing conditions (Mindigo, 1987).

5. Sanitary Sewer

Sanitary sewer service is provided to the project site by the City of San Jose. There are four existing sanitary sewer lines serving the project site: a 36 inch line in Autumn Street and in St. John Street (east of Autumn Street), a 27 inch line in Julian Street, a 12 inch line in Santa Clara Street, and eight inch lines in Autumn, Montgomery, and Julian Streets. However, the condition of these lines is questionable due to their age (Mindigo, 1987).

6. Wastewater Treatment

The San Jose Water Pollution Control Plant (WPCP) provides wastewater treatment service to the project site. The WPCP, which is located approximately 2.6 miles northwest of the project site, has an existing holding capacity of approximately 167-million gallons per day (mgd). The City of San Jose has a growth management policy which regulates new development throughout the City so that the capacity of the system is not exceeded (City of San Jose, 1987).

7. Natural Gas

Pacific Gas and Electric Company (PG&E) provides natural gas service to the project site. A natural gas regulator and its related lines are currently located within the project boundaries on the existing PG&E site (near the southeasterly corner of Montgomery and St. John Streets). Currently, there are two high-pressure lines located along Montgomery Street (12-inch and 10-inch), a 10-inch high-pressure line along St. John Street and a 12-inch line along Santa Clara Street. A two-inch high-pressure line is also located along Autumn Street (Sink-Combs-Dethlefs, 1987).

8. Electricity

Electrical service is provided to the project site by PG&E. There are existing overhead electrical wires on Montgomery, Autumn and St. John Streets which provide service to the existing businesses within the project boundaries.

9. Telephone

Pacific Bell provides telephone service to the project site. Existing overhead lines are currently located on all streets within and adjacent to the project boundaries.

10. Solid Waste

Solid Waste service is provided to the project site by Waste Management of Santa Clara County. Listed below in Table A-29 are the existing landfills which Waste Management utilizes, their capacity and anticipated date of closure.

TABLE A-29
EXISTING LANDFILLS AND REMAINING CAPACITIES

LANDFILL (REMAINING CAPACITY)	ESTIMATED YEAR OF CLOSURE
Guadalupe (1,590,000-tons)	1995
Kirby Canyon (24,300,000-tons)	50-years (recently opened)
Newby Island (19,113,000-tons)	2016
Santa Clara Landfill (1,250,000-tons)	1992

SOURCE: Santa Clara County (1986)

Waste Management is also able to provide resource recovery services, should the demand warrant such services (Nicoletti, 1987).

POTENTIALLY SIGNIFICANT IMPACTS

1. Fire Protection

Existing facilities and firefighting apparatus would be adequate to meet the anticipated demand generated by the proposed arena facility. As previously

stated, both the "first response" and "second response" units are within the acceptable response time frames established by the City of San Jose and its General Plan. The fire-flow capacity in the project vicinity would not be adequate to meet the demands generated by a facility of this size, without an extension of the 24 inch high pressure line from Santa Clara Street. With this mitigation, the proposed project would have a less than significant impact on fires services (Overhouse, 1987).

2. Police Protection

Since the proposed arena facility will be operated by the City of San Jose, additional City police personnel will be required to monitor security at the proposed events. This additional need for police personnel could impact existing police services, thereby requiring the addition of more police personnel. Based on information provided by similar facilities, a minimum of six officers would be needed for traffic control alone. However, until specific venues are arranged, it will not be known how many, if any, additional personnel would be needed for security purposes inside of the arena facility. Traffic control at the end of the events could be provided by the City of San Jose. This would assist in dispersing traffic in a timely manner (Burde, 1987).

Implementation of the proposed project could have a significant impact on the existing police services.

3. Water Supply

The existing four-inch lines in St. John and Autumn Streets are inadequate to serve the proposed project site. Additionally, as previously stated, the fire-flow capacity in the project area is too low for adequate fire protection. However, with the implementation of the mitigation for fire-flow listed above, the proposed project would have a less than significant impact on the water supply.

4. Storm Drainage

The project site is fully developed under existing conditions, and implementation of the proposed project will not increase the amount of impervious surface area on the site. Accordingly, it is not anticipated that there will be any change in the amount of run-off from the site. The landscaping proposed as part of this project may increase the pervious surface area from the limited landscaping existing on the site (Wheeler, 1987). However, the existing 10-inch line in Montgomery Street and the 18-inch line in St. John Street are currently inadequate, and will need to be replaced upon the implementation of the proposed project (Sink-Combs-Dethlefs, 1987).

The City of San Jose has proposed including an additional storm drain to parallel the existing storm drain along West Santa Clara Street. The proposed storm drain would serve the project site and would improve existing storm drainage problems along West Santa Clara Street. The proposed storm drain would flow east and discharge into Los Gatos Creek. The City of San Jose has a three-year design standard for storm drains (Lee, 1987).

The proposed storm drain would increase the flow in Los Gatos Creek and the Guadalupe River (downstream of the project site) for the three year design events which exceed the capacity of the existing storm drain. However, the

proposed storm drain capacity will be approximately 50 cubic-feet per second, while the 10 year flow rate in the Guadalupe River is over 7,000 cubic-feet per second. The increased flow due to the proposed storm drain would not make a perceptible change in the flow velocity or water surface elevations of the Guadalupe River. The proposed project would not have a significant impact on the environment (Wheeler, 1987).

5. Sanitary Sewer

A worst-case and average analysis were calculated by the City of San Jose to assess the sanitary sewer impacts of the proposed arena facility. Based upon an attendance level of 19,000 patrons, it was estimated that each of the patrons would require 1.5 minutes of bathroom use (this equates to a total of 24,000 minutes). Within a 30 minute half-time period, if all 19,000 patrons needed access to the toilets, the arena would need to have a 400 gallon per minute capacity. Four hundred gallons per minute in a 24 hour day (without variation in use) equates to 600,000 gallons per day capacity (Tanner, 1987).

This capacity would require a ten inch sanitary sewer line with a one percent hydraulic slope to the main line. There is sufficient capacity in the existing system to accommodate this flow (Tanner, 1987). In connection with the reconstruction of some of the roadways in the project vicinity, some of the existing lines may be replaced and/or abandoned. However, there are no specific design plans for these improvements. The proposed project would meet the City's Level of Service policy for snitary sewer flow and therefore would not have a significant impact on the sanitary sewer system.

6. Wastewater Treatment

In connection with the sanitary sewer service described above, there is sufficient capacity at the San Jose Water Pollution Control Plant to accommodate the effluent generated by the proposed arena facility. Accordingly, the proposed project would not have a significant impact on wastewater treatment.

7. Natural Gas

The existing natural gas regulator and its related lines will have to be relocated to allow for the development of the proposed arena facility. The existing major lines in Montgomery and St. John Streets will require abandonment as a result of this relocation, leaving only a minor line to serve adjacent properties (Sink-Combs-Dethlefs, 1987).

Assuming that the regulator is relocated north of the proposed project site (it is served by the existing 12 inch high-pressure line in Julian Street), at least two new lines will be required in Autumn Street to serve areas south and east of the project site. One of these, a high-pressure line, will have to be located east of the existing Autumn Street right-of-way in order to maintain a 100 foot building setback as recommended by the City of San Jose (Sink-Combs-Dethlefs, 1987).

With the implementation of the improvements identified above, the proposed project would not have a significant impact on natural gas service.

8. Electricity

Development of the proposed arena facility on the project site would conflict with the existing overhead electrical lines on Montgomery Street and the westerly portion of St. John Street. These lines primarily service the project site and would be removed as part of the implementation of the proposed project. The existing overhead line along Autumn Street conflicts with the proposed roadway widening of this area. However, the proposed project would not have a significant impact on electrical service being provided to the site (Sink-Combs-Dethlefs, 1987).

9. Telephones

Pacific Bell service to the project site would not be affected by the implementation of the proposed arena facility. There are sufficient facilities available to service the proposed project. Therefore, the impact would be nonsignificant (Mindigo, 1987).

10. Solid Waste

The proposed arena facility would generate an estimated three- to four-yards (loose) of solid waste per 1,000-patrons, depending on the venue. Based upon statistics prepared by the firm that provided waste collection services for the 1984 Olympics, in Los Angeles, listed below are the rankings (in order) of the events that generate the most solid waste (Nicoletti, 1987):

- Boxing;
- Hockey;
- Basketball;
- Circus;
- Concerts;
- Tennis; and
- Ice Shows.

As previously stated, Waste Management of Santa Clara County is able to provide resource recovery services. However, it would be necessary for the service staff of the proposed arena facility to separate the different resources into individual containers (i.e., paper, glass). Based upon the anticipated amount of solid waste to be generated by the proposed arena facility, it would not appear that enough waste would be generated to offset the cost of resource recovery compactors (Nicoletti, 1987).

Depending on the design of the proposed arena facility, waste collection could be a potential impact. The most effective method for refuse collection is the front-loading, three-yard containers. Placement of these containers throughout the proposed surface and structure parking areas would minimize the amount of loose litter, while at the same time they would expedite collection services. With regard to refuse collection of the arena facility, direct access into and out of the facility would allow for an expedient collection (Nicoletti, 1987).

Construction of the proposed arena facility would generate refuse that would need to be removed from the site. Waste Management would be able to provide

debris boxes for these purposes. However, advanced notice of at least 30 days would be needed to make the proper arrangements for the delivery of these debris boxes (Nicoletti, 1987).

Implementation of the proposed project would not have a significant impact on the environment.

11. Cumulative Impacts

The proposed arena facility site is located in an area of existing urban development and services. Although the proposed project would increase the demands on the existing services discussed in this section, the cumulative impact on urban services is not considered to be significant.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce adverse impacts to a level that is less than significant.

- Additional police personnel would be required for security purposes at the proposed arena facility. **(Not Presently Included in Project)**

- Conduct further engineering studies for the relocation of the existing gas regulator to a location northerly of the project site. Relocation of this regulator station can be completed before or during construction on the project site. **(Not Presently Included in Project)**

- Abandon the existing eight inch sanitary sewer line in Montgomery Street. Replace the existing 36 inch sanitary sewer line in Autumn Street between Santa Clara and St. John Streets. **(Not Presently Included in Project)**

- Replace the existing four inch water lines in St. John and Autumn Streets with a new eight inch line. This eight-inch line, when connected to the existing eight and 16 inch lines, should provide adequate service to the proposed arena facility **(Not Presently Included in Project).**

- Install a pumping station to improve the fire-flow characteristics to an acceptable level **(Not Presently Included in Project).**

- Underground all new and existing utility lines on the project site **(Included in Project).**

- Install a new 24 inch storm drain line in Autumn Street from St. John Street to Santa Clara Street, continuing easterly via Santa Clara Street to Los Gatos Creek **(Not Included in Project).**

K. AESTHETIC RESOURCES

EXISTING SETTING

1. Visual Setting

The project site is located on the northerly side of Santa Clara Street, west of the Guadalupe River, in the City of San Jose, and is comprised of approximately 17 acres of urbanized land. The topography of the site, as well as that of the surrounding area, is fairly level, with an average elevation of 85 feet above mean sea level (United States Geological Survey, 1973). As stated in PART TWO, SECTION I., A. LAND USE of this document, the project site is currently utilized for commercial and light industrial land uses.

2. Visual Character of the Project Site

The project site is currently utilized for a mixture of commercial and light industrial land uses. Photographs of the project site and the project vicinity are presented in Figures A-38 to A-41. The majority of the structures on the project site are limited to one and two stories, although there are several structures in excess of 30 feet in height. No structures currently located on the project site exceed 35 feet in height.

The project site is almost entirely covered by impervious surfaces (i.e., concrete, pavement). Limited vegetation and pervious surfaces comprise the remainder of the project site.

3. Visual Character of the Project Vicinity

The area surrounding the project site is similar in character, being comprised of commercial and light-industrial land uses. Northeasterly of the project site (on the northerly side of St. John Street) is an existing metal foundry, automobile-related services and assorted residential uses. The same type of land uses are also located to the south (across Santa Clara Street) of the project site. East of the project site is the confluence of Los Gatos Creek and the Guadalupe River. The Southern Pacific Railroad right-of-way, utilized by the CalTrain commuter service, is located to the west of the project site.

4. View Corridors

A view corridor is a vista spanning a distant area from a point of visual origin. View corridors described in this analysis originate from likely viewer vantage points and focus on the proposed project site. Existing view corridors associated with the project site include views from pedestrians and motorists traveling along Autumn, Montgomery and Santa Clara Streets. Additionally, commuters traveling on the CalTrain commuter service along the westerly side of the project have elevated views of the project site. However, as a result of the urbanized character of the project area, these view corridors are primarily limited to the public rights-of-way through these areas.

5. View Opportunities

View opportunities are those views available from the project site. Due to the project site's location, there are opportunities to view significant natural

FIGURE A-38 PHOTO OF THE SITE

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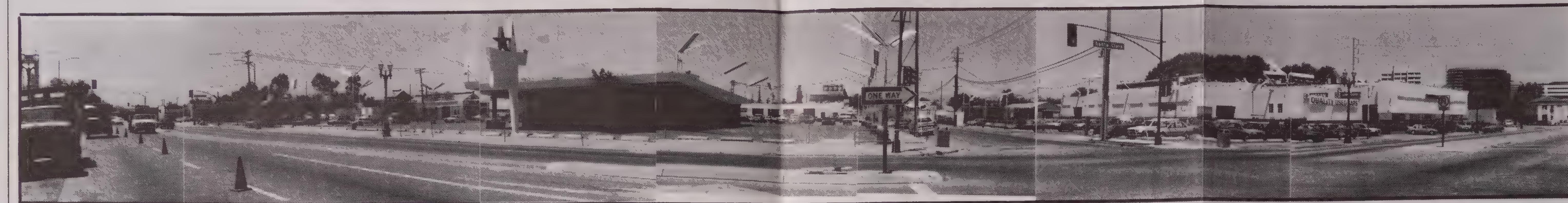


Photo was taken from the southwest corner of Autumn St. and Santa Clara St. looking towards the north showing the existing auto dealership on the southeast corner of the site.

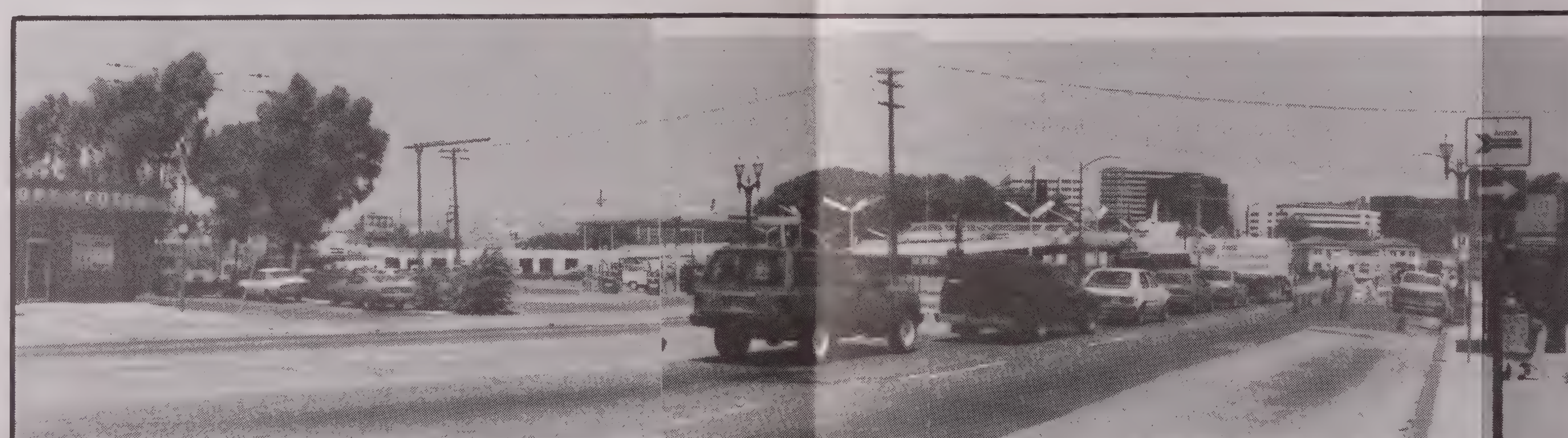


Photo was taken from the southside of Santa Clara St. looking northeast showing the southerly portion of the site.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE A-38

Photo was taken from the southwest corner of Santa Clara St. and Delmas Ave. looking north towards the project site showing the commmercial uses and Los Gatos Creek (to the right).

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE A-39

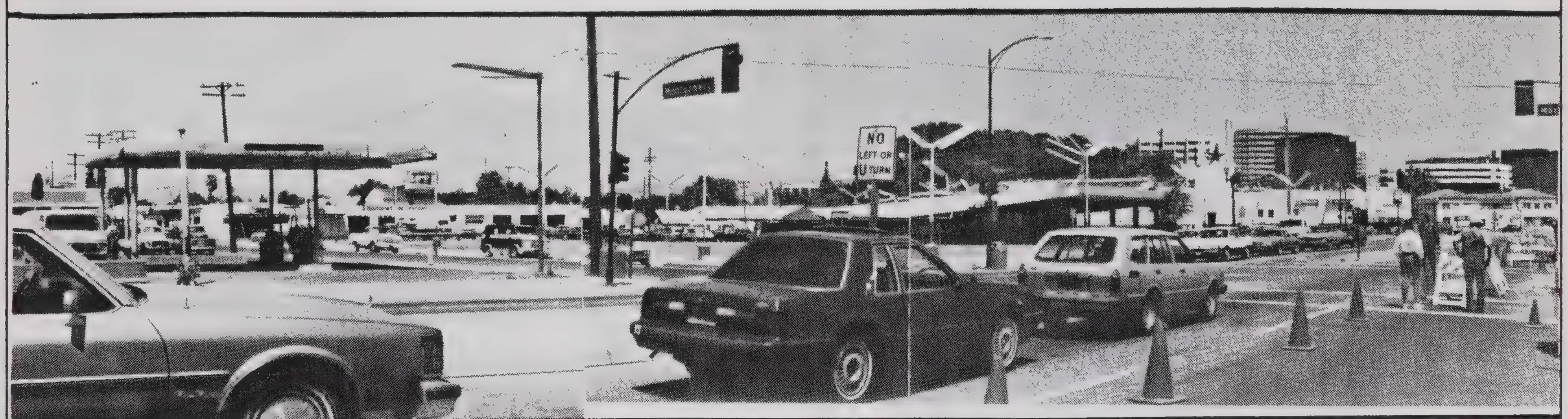


Photo was taken from the southwest corner of Montgomery St. and Santa Clara St. looking north towards the southerly portion of the project site showing existing auto/commercial uses.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE A-40

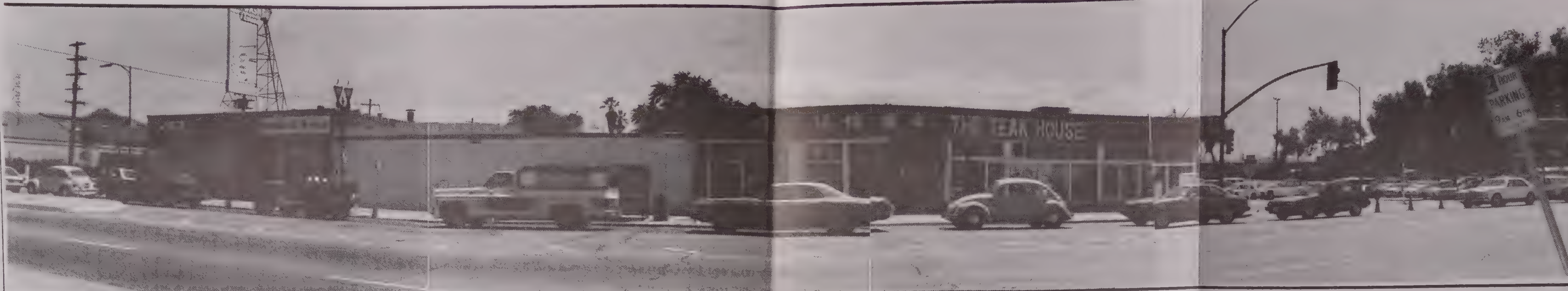


Photo was taken from the northside of Santa Clara St. looking south ,showing commercial uses along Santa Clara St.. This shows the area for phase 2 , option B of site A (parking garage).

Photo was taken from the intersection of W.St.John St. and N.Montgomery St. looking south showing existing industrial uses located on proposed site.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE A-41

features. As previously stated, the confluence of Los Gatos Creek and the Guadalupe River is located along the easterly boundary of the project site, providing views of the heavily-vegetated riparian habitat area. Beyond the Guadalupe River, to the east of the project site, are views of the high-rise structures associated with downtown San Jose. The balance of the view opportunites are similar to those described in the view corridor section (i.e., an urbanized area, characterized by commercial and light-industrial land uses).

POTENTIALLY SIGNIFICANT IMPACTS

1. Visual Character of the Project Site

Implementation of the proposed arena project would alter the project site from its currently urbanized (i.e., commercial, light-industrial land uses) character to a single use (the proposed arena facility) which would be greater in height (approximately 65 feet above grade), with its associated auxiliary facilities and parking areas. As stated in the Horizon 2000 General Plan, the City of San Jose desires to encourage the design of structures that are in scale with adjacent development and harmonized with the character of the area.

Although the land use intensity of the proposed arena facility would be greater than adjacent land uses in terms of height of structures and the ratio of floor area to site area, the design of the proposed facility is proposed to be in size and scale with future redevelopment activities within the Julian-Stockton Redevelopment Area. The proposed arena facility would add a new and different visual element to the project area. The mass and scale of the arena use is compatible with urban development, although it is unique from a single use development.

The mass and scale of the proposed use could be considered compatible with existing urban development patterns in the project vicinity, although it would be unique from a single-use development viewpoint.

Design of Proposed Arena Facility

The proposed arena facility, as analyzed in this document, assumes a building approximately 350 feet wide by 450 in length. The height of the building (above the existing grade) would be approximately 65 feet. The footprint of the building would encompass approximately 3.7 acres.

At this time, there is no precise design plan for the proposed arena facility. Therefore, an evaluation of the visual suitability of the proposed facility should occur in later project design stages. However, it is anticipated that the proposed project would add a new, significant element of height and mass to the project area. Careful siting, including setbacks and orientation with architectural treatment, would be necessary to reduce visual impacts.

Conformance to the Horizon 2000 General Plan Urban Design policies would require the highest standards of architectural and site design for development.

Proposed Landscaping and Vegetation

At this time, there is no formalized landscaping plan for the proposed arena facility. However, it is anticipated that the City of San Jose would conform to its

policies of providing trees along the public rights-of-way and throughout the proposed parking areas.

An evaluation of the visual suitability of the proposed landscaping, and the extent that it buffers the intensity of the proposed arena facility, would be provided in later project design stages. The apparent bulk of the structure could be relieved through its design, including landscaping, to achieve a totally-integrated effect and appearance.

Surface Parking Areas and Parking Structure Facilities

Implementation of the proposed arena facility would include the construction of surface parking areas and three- to four-story parking structures. Surface parking areas will be located around the perimeter of the proposed arena facility, on the northerly side of Santa Clara Street. The 575 parking spaces designated as along the westerly side of Guadalupe River will serve as interim parking until such time the Guadalupe River Park Plan is implemented. At that time, it is anticipated that this surface parking area will be relocated to a parking structure that would be located on the southerly side of Santa Clara Street (between Cahill and Montgomery Streets).

In addition to the facilities described above, a three-level parking structure that would accommodate 1,370 vehicles is proposed immediately to the north of the arena facility. This parking structure would have a pedestrian bridge that would connect with the proposed arena facility. However, design plans for this parking structure and pedestrian bridge are not available. Accordingly, an evaluation of the visual suitability of these facilities would occur in later project design stages in order to provide maximum utilization of the project site and to minimize visual impacts.

2. <u>View Corridors</u>

Construction of the proposed arena facility would alter the existing view corridor opportunities of the project site. Implementation of the project would eliminate the existing northerly view corridors along Autumn and Montgomery Streets. Additionally, views from Santa Clara Street would be altered from its existing character to one of an arena facility and large expanses of surface parking.

3. <u>View Opportunities</u>

View opportunities from the project site would be limited to the existing views that are currently available from the project site. The construction of a three- to four-level parking structure along the southerly side of Santa Clara Street would eliminate some of the view opportunities that are currently available to the south of the project site. However, the development of the single use with proper orientation of the proposed facility could increase view corridors in other areas such as the Guadalupe River.

4. <u>Light and Glare</u>

At this time, there are no precise plans for this project. Accordingly, it is not possible to evaluate the materials that will be incorporated into the exterior of the proposed arena facility. The use of glass siding and the addition of lighting standards for the proposed parking facilities has the potential to generate glare.

Any additional glare would primarily impact any residential uses in the immediate vicinity of the project site. The impact to existing commercial and industrial uses in the project vicinity would be insignificant.

5. Conclusion - Environmental Level of Impact

Implementation of the proposed arena facility project would have a less than significant impact on the adjacent commercial and industrial uses. The adverse impact to the residential uses in the project vicinity would be significant and unavoidable.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the identified adverse aesthetic impacts associated with the implementation of the proposed San Jose Arena Facility project.

- Further evaluation of the site design impacts should be conducted prior to the architectural review process utilized by the City of San Jose. Proposed landscaping, exterior building materials and compatibility with adjacent uses should be considered in the review. **(Not Presently Included in Project)**

- The proposed structure could minimize glare and intrusion on adjacent properties by utilizing no-glare glass and requiring lighting standards in the parking areas to be focused onto the project site. Time clocks should be utilized to automatically shut-off lights after arena events are over, leaving only security lighting on beyond that time. **(Not Presently Included in Project)**

- Street trees could be planted along all public rights-of-way to minimize the intensity of the proposed arena facility. Additionally, all surface parking areas could be landscaped with a minimum of one 15-gallon tree for every six parking spaces (these trees would be in addition to the street trees). Landscaping plans could be approved prior to the implementation of the proposed project. **(Not Presently Included in Project)**

- Careful siting of the proposed arena facility, including setbacks and orientation with architectural treatment of the facility, would be included in order to reduce visual impacts of the arena facility. **(Included in Project)**

- Conformance to the City General Plan Urban Design Policy would be required to provide the highest standards of architectural and site design for the proposed development. **(Included in Project)**

L. ARCHAEOLOGIC RESOURCES

EXISTING SETTING

This analysis summarizes information collected from archival research and field visits conducted by Holman and Associates and Archaeological Resources Management during late 1986 and early 1987, during which a surface reconnaissance was conducted

for historic and prehistoric resources for the larger Julian-Stockton Redevelopment Area, and during subsequent site visits for this specific project.

Project sites A-1 and A-2 cover most of the same property, differing only in their northerly and southerly boundaries. At present, the project sites are almost entirely covered by commercial buildings, pavement or fill-covered lots.

A literature review covering the project sites was conducted in January, 1987. During this research, it was discovered that there had been at least 11 separate archaeological field investigations conducted within the Julian-Stockton Redevelopment Area, several of which encompassed the project sites. Of these field investigations, two of the most important were conducted in 1974 and 1975 by Edwards, Edwards and Carrell, which covered all of the present project areas. As with all of the other reports, their findings were negative, based on a visual inspection and a limited program of backhoeing.

The principal contribution of these investigations was to demonstrate that aboriginal settlement patterns along the edges of what in the past had been a marsh area would have placed villages and/or campsites inside of the current project area, thus making the general area in and around the project sites archaeologically sensitive. These archaeologically sensitive areas may contain buried habitation site and Native American burials. The archaeologists who have published their findings for the Julian-Stockton Redevelopment Area have reached the same general conclusions which are summarized below:

- Historic maps, accounts and findings of archaeological field work in the area of the Julian-Stockton Redevelopment Area indicate that in addition to the rivers and creeks running through the area, a low swampy area once covered a large but currently undefined portion of the Redevelopment Area.

- It has been demonstrated archaeologically that the river and creek banks and the margin of the marshes supported camp sites, special use areas and villages due to the presence of water and the abundance and variety of food sources. Any areas containing creek banks or marsh margins would therefore be considered archaeologically sensitive.

- Information does not exist which would aid in defining the actual borders of the marsh in particular, thus making the entire project area uniformly sensitive until proven otherwise.

- Visual inspections of the surface inside the project area are not possible, due to the presence of buildings, pavement, cement or fill material covering almost all of the ground surface. Additionally, observations of subsurface excavations reveal the presence of silt, often several feet thick, covering the ground, thus further obscuring prehistoric resources.

- Archaeologists who have worked in this general area stress the need for some form of mechanical testing to determine the thickness of the silt layers and to locate buried archaeological deposits.

IMPACTS

Construction of the project would potentially have a significant impact upon archaeological resources. Although the prehistoric archaeological potential of the

area is still unknown, the project site must be considered to have a high potential for containing archaeological resources (Holman, 1987). Subsurface archaeological testing of the site was not possible since access to any significant portion of the site was prevented by the nearly continuous covering of paving and buildings. The potential presence or absence of archaeological resources could not be established. Construction of the arena will require substantial grading excavation and earth work that would impact archaeological resources if any are present in the areas disturbed by construction.

MITIGATION MEASURES

Potential impacts to archaeological resources would be mitigated by conducting an archaeological testing program with mechanical excavation (i.e., backhoe) at appropriate locations inside of the project site's boundaries. The depths and areal extents of any deposits would then be mapped for planning purposes. The difficulty with conducting mechanical testing at this time is the lack of open space within the project boundaries to conduct such tests. As previously stated, streets and buildings cover a large portion of the project site. Mitigation based on the accidental discovery of prehistoric materials during construction, is not desirable both because significant damage can inadvertently be done to archaeological resources and because the logistics of testing at that time are quite difficult and can cause delays and be costly. It is more desirable to establish a testing plan in advance of any significant grading or site clearing. The testing plan would include augering or trenching at regular intervals in open lots or on streets to test for archaeological deposits. The plan would also include monitoring demolition if significant excavation for foundation removal is required in areas where archaeological resources are known or expected. Based on this initial testing, a determination could be made as to whether or not it would be necessary to conduct additional testing in areas now occupied by buildings, after the land has been acquired and buildings have been removed. If Native American cultural resources are encountered, qualified representatives of the Native Americans would be consulted to determine appropriate mitigation for impacts to the Native American cultural resources. One of the mitigation measures that may have to be considered is avoiding the Native American cultural resources. (**Included in Project**)

M. HISTORIC RESOURCES

EXISTING SETTING

Portions of the project site have been included in at least three major cultural resource field surveys. In 1975, a cultural resource assessment of the Julian-Stockton Redevelopment Area was prepared by Archaeological Consulting and Research Services, Incorporated, which identified potential historic resources in the area. Two of the resources which were identified are within the boundaries of the project site (73 and 99 North Autumn Street). Further assessment of these structures was recommended as specific project plans were proposed (Dietz, 1975).

A further assessment of the Julian-Stockton Redevelopment Area was completed in 1986 by Archaeological Resource Management. This study identified seven potentially significant historic structures within the boundaries of the project site. These included:

- 555 West St. John Street -- San Jose Ice and Cold Storage building (circa 1905);

- West St. John Street -- Pacific Gas and Electric Company Plant (1877);
- 491 West St. John Street -- San Jose Foundry (1928);
- 589 West Santa Clara Street -- Interior Plant Design Warehouse (pre-1884);
- 73 North Autumn Street -- residence (circa 1885);
- 97 North Autumn Street -- residence (circa 1870); and
- 99 North Autumn Street -- residence (circa 1885).

Recommendations specified that site/structure-specific research be conducted to evaluate the significance of each of the identified resources according to the standards of CEQA, NEPA or the City of San Jose Historical Landmark Ordinance (Laffey, 1986).

Three of the previously-identified structures (73, 97 and 99 North Autumn Street) were included in a historical evaluation of the Guadalupe River Park Master Plan. These structures may have merit as examples of early folk architecture. Additionally, 99 North Autumn Street may qualify for City Landmark status (Cartier and Laffey, 1987). None of the structures are currently designated City Landmarks or are listed on the National Register of Historic Places. Additionally, none of the identified structures are listed on the Historic Resources Inventory.

IMPACTS

Archival research and a surface reconnaissance of the project site indicate that there are six standing historic resources, in addition to possible subsurface resources, within the boundaries of the project site. Potentially significant subsurface resources may exist that include the foundations and other underground features associated with the early gas production facilities at the Pacific Gas and Electric Company site on West St. John Street.

All of the standing structures within the project boundaries are scheduled for demolition, which will cause moderate to significant impacts on the identified historic resources.

1. <u>Pacific Gas and Electric Company Complex</u>

   The only structure on the PG&E site that has potential for historic or architectural significance is the welding shed. The plans for the proposed arena facility indicate that the arena structure would be located in the vicinity of the welding shed. The significance of this structure is based on the presence of the stamped metal Classical Revival cornice; however, there are other, more elaborate examples of this technology (i.e., St. John's Church). Therefore, the potential demolition of this structure is not considered a significant impact.

2. <u>555 West St. John Street</u>

   The San Jose Ice and Cold Storage Company warehouse is considered a significant architectural resource, due to the fact that this is the last industrial warehouse of this style and form in Santa Clara County (Laffey, 1987). Alternative A-1

proposes a parking structure in the location, whereas Alternative A-2 calls for surface parking. Both alternatives require the demolition of the building, which will result in a significant impact to the historic structure.

3. 589 West Santa Clara Street

The Interior Plant Design warehouse and office dates to the pre-1901 and pre-1911 period. This structure is a moderately significant historic resource. Present design plans call for the demolition of this structure. However, due to its present impacted condition, the demolition of this building would only result in a less than significant impact.

4. 73 North Autumn Street

This residence/commercial building is an example of early folk architecture and is considered a significant historic resource. Present design plans call for the demolition of this structure, which would result in a significant impact to the historic resource.

5. 97 North Autumn Street

This residence is an example of early folk architecture and is considered a significant historic resource. Present design plans call for the demolition of this structure, which would result in a significant impact to the historic resource.

6. 99 North Autumn Street

This residence is considered a significant historic resource as an example of Victorian Folk architecture and its long-time association with a typical pioneer family of the City of San Jose. Present design plans call for the demolition of this structure, which would result in a significant and unavoidable impact to the historic structure.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse impacts on historic resources identified in this analysis.

Generally, mitigation alternatives for historic resources include redesigning the project to preserve the resource or moving the structure to other locations. In the case of unavoidable demolition, alternatives may include intensive archival/oral history research, photographic documentation and the salvage of architectural elements. The San Jose Historic Landmarks Commission should be kept informed and should approve all actions involving the resources. In the case of structure demolition, there should be testing and monitoring for subsurface resources associated with the structure.

1. Pacific Gas and Electric Company Complex

Although preservation of the structures on the PG&E site are not recommended and significant impacts are not anticipated, the presence of significant subsurface resources have not been determined. It is therefore recommended that all subsurface excavation be monitored by a qualified archaeologist to

determine the presence and evaluate the significance of any subsurface historic resources which may be located. These resources are likely to consist of underground oil storage tanks dating to 1877 and foundations of pre-1906 structures. The most sensitive area for subsurface features is the northwesterly portion of the property. **(Not Presently Included in Project)**

In the case of unavoidable demolition, alternatives could include intensive archival/oral history research, photographic documentation and the salvage of architectural elements. **(Included in Project)**

2. <u>555 West St. John Street</u>

   Preservation and project redesign is considered the ideal mitigation for the brick warehouse located at 555 West St. John Street. Relocation of a large brick structure such as this is not a likely or practical alternative. In the event that project redesign or structure relocation do not prove to be acceptable alternatives, an application for demolition should be reviewed by the San Jose Historic Landmarks Commission. Mitigation alternatives in the case of demolition should include intensive archival/oral history research and photographic documentation. Demolition of this structure would result in a significant and unavoidable impact. **(Included in Project)**

3. <u>589 West Santa Clara Street</u>

   Due to the present impacted condition of the Interior Plant Design structure, demolition of this building would result in a less than significant impact. Mitigation recommended for the loss of this building is intensive archival/oral history research. **(Included in Project)**

4. <u>75 North Autumn Street</u>

   The demolition of this structure would result in a significant impact to this historical resource and preservation is recommended. Due to the structure's location near the edge of the project site, project redesign would be the optimum mitigation alternative. Alternative mitigation options would include relocation of the structure to a site in the immediate neighborhood or in another historical neighborhood or compatible site. **(Not Presently Included in Project)**

   In the case of unavoidable demolition, alternatives may include intensive archival/oral history research, photographic documentation and the salvage of architectural elements. Even with the implementation of these measures, demolition of this structure would result in a significant and unavoidable impact **(Included in Project).**

5. <u>97 North Autumn Street</u>

   The demolition of this structure would result in a significant impact to this historical resource and preservation is recommended. Due to the structure's location near the edge of the project site, project redesign would be the optimum mitigation alternative. Alternative mitigative options include relocation of the structure to a site in the immediate neighborhood or in another historic neighborhood or compatible site **(Not Presently Included in Project).**

   In the case of unavoidable demolition, alternatives may include intensive archival/oral history research, photographic documentation and the salvage of

architectural elements. Even with the implementation of these measures, demolition of this structure would result in a significant and unavoidable impact **(Included in Project).**

6. 99 North Autumn Street

The demolition of this structure would result in a significant impact to this historic resource and preservation is recommended. Due to this structure's location near the edge of the project site, project redesign would be the optimum mitigation alternative. Alternative mitigative options include relocation of the structure to a site in the immediate neighborhood or in another historic neighborhood or compatible site. **(Not Presently Included in Project)**

In the case of unavoidable demolition, alternatives may include intensive archival/oral history research, photographic documentation and the salvage of architectural elements. Even with the implementation of these measures, demolition of this structure would result in a significant and unavoidable impact. **(Included in Project)**

N. RESIDENTIAL AND BUSINESS RELOCATION

EXISTING SETTING

1. Residential Uses

As more thoroughly described in the Land Use (Section A) of this document, residential uses within the project site are limited to two single-family, detached units. Some of the residences are of sufficient age and/or character to be of potential historical significance (refer to Section M, Historic Resources, of this document). Both owner-occupied and rental residences are located within the project site.

The residential uses within the site have, through the development of the surrounding areas for commercial and light-industrial businesses, become less compatible with adjacent uses with regard to the residential quality of life.

2. Business Uses

The project site contains approximately 25 existing business operations. These include professional offices, warehouses, commercial and light-industrial uses. The businesses range in size from small, sole proprietorships occupying smaller land parcels and buildings and having minimal numbers of employees, to large branch operations of major corporations. In the latter category is the Pacific Gas & Electric Company Service Center.

Relocation Regulations and Procedures

Implementation of the proposed Arena Facility Project would require the City/Agency to comply with provisions of California Redevelopment Law and State Relocation Assistance Policies for relocation of the residents and businesses on the project site. Criteria for determining eligibility of displaced persons and businesses for assistance are contained in the California Housing and Community Development Guidelines. The

Government Code, and amendments thereto, requires local governmental agencies to make in-depth analyses relative to the applicability of Relocation Assistance Programs/Policies as a result of acquisition of property for public projects (i.e., the San Jose Arena Facility).

1. Housing Relocation Assistance

Two forms of assistance are available to owners and tenants who must relocate. These are: 1) relocation advisory assistance in the form of counseling and aid in locating suitable replacement properties; and 2) relocation assistance payments to help pay for the costs of relocation.

The eligibility requirements for relocation financial assistance and the amounts available are: 1) homeowners/occupants (with 180+ days of residence) are eligible to receive up to $15,000; and 2) renters and homeowners/occupants (with 90+ days of residence) may receive up to $4,000.

When these amounts are insufficient to allow relocation to comparable housing or when there is a lack of comparable housing stock, a Last Resort Housing Plan is required and may allow the amount of financial assistance to exceed that established by the State Guidelines.

A public entity may issue a "Notice of Intent to Displace" to the owners/occupants of the area to be affected at the time of formation of plans showing a reasonable expectation of the need to acquire real property. This notice establishes many of the necessary eligibility requirements well before actual acquisitions of property and displacement. Such advance notice and planning enable the appropriate agency to accommodate any tenant's hardship situation or other unique conditions which do not conform to the specific parameters of the applicable policies, guidelines or operating methodologies.

The persons to be displaced have the right to participate in the review of the relocation plans and the ongoing Relocation Assistance Program.

Agencies acting under the jurisdiction of the State Guidelines are required to offer a minimum of three (3) comparable replacement dwellings for consideration by the displaced residents.

2. Business Relocation

Relocation Assistance is available to businesses which meet the following criteria:

- The business occupies the subject property at the time the City makes a written offer of purchase.

- The business vacates the property and/or moves personal property from the site as a result of project implementation after the first written offer to acquire.

- The real property is purchased by the City as a portion of the Redevelopment Project Implementation.

There are two (2) types of aid available to businesses which must be relocated due to Redevelopment Projects or Programs. These forms of aid include the Relocation Advisory Assistance (Counseling, replacement property location search assistance) and financial assistance to help defray the costs of relocation.

To be eligible for assistance, a commercial operation qualifies as a "business" if it is conducted primarily:

- For the purchase, sale, lease/or rental of real/personal property or the manufacture, processing or marketing of commodities, products or any other personal property.

- For the sale of services to the public.

- By a non-profit organization which has established its non-profit status per applicable Federal or State Regulations.

- Solely for the purpose of a moving expense payment; for assisting in the purchase, sale, resale, manufacture, processing, or marketing of products, commodities, personal property, or services by the erection and maintenance of an outdoor advertising display, whether or not such a display is located on the premises on which any of the above activities are conducted.

The Redevelopment Agency of San Jose applies and/or interprets the Guidelines, on a case-by-case basis, in a timely manner for businesses within the project site.

POTENTIALLY SIGNIFICANT IMPACTS

1. <u>Residential Relocation</u>

Implementation of the proposed Arena Facility Project will dislocate the residents occupying the dwellings in the area. The proposed Arena Facility does not allow for any residences within the boundaries of the project site. Accordingly, all of the persons currently residing in the project boundaries will have to relocate elsewhere.

The effects of the implementation of the project upon those structures with potential historical significance are discussed in Section M, Historic Resources, of this document.

The project proposal indicates that it will be necessary to acquire the properties in the project site for development purposes. Such acquisition may be either by negotiated purchase or condemnation.

As each dwelling's residents are relocated, there will be a concomitant, incremental increase in the demand for comparable replacement housing. This demand may be first experienced by residential neighborhoods near the project site. However, for the relocation of replacement housing, the involved Agency is not restricted to geographic range.

Since only two (2) residents will be relocated by this project, the impact of the project is less than significant by CEQA standards.

2. Business Relocation

The existing business operations within the boundaries of the project site will be dislocated from their established locations as a result of implementation of the proposed Arena Facility. Implementation of the proposed Arena Facility Project could, on a worst-case basis, create the need for comparable operating facilities for all of the approximately 25 businesses located within the project site. As these firms may have established clientele in the immediate area, their relocation needs would include comparable facilities close to their current locations, thereby impacting the available commercial space in the project vicinity.

Not all of the existing businesses will find it financially feasible to relocate, and may cease operations. These alternatives could, for an indeterminate time period, incrementally increase the unemployment levels of the City, County and region.

The impact of the project would be significant by CEQA standards. While mitigation measures can reduce the impact, the project impact will nonetheless be significant and unavoidable.

MITIGATION MEASURES

1. Residential Relocation

The City/Agency should prepare a relocation plan in accordance with all applicable laws. The residential requirements of each homeowner and/or tenant will be evaluated on a case-by-case basis to ensure the implementation of the best feasible methods of Relocation Assistance. **(Included in Project)**

Relocation Assistance available from the Redevelopment Agency and City of San Jose should be two-fold:

- A Relocation Specialist should provide assistance in locating new living accommodations. The Specialist should help the eligible relocatees, who are to be given priority, investigate housing subsidy programs, public housing, FHA repossessed dwellings and current property listings (both for sale and for rent) and,

Relocation Assistance payments should be available to persons displaced by the implementation of the proposed project. Such payments may be in the form of:

- Reimbursement of moving expenses and/or an across-the-board displacement allowance payment;

- A rental replacement payment intended to make up the difference between the existing property's rent and the rental payment required for replacement housing, and

- Replacement housing cost payments for homeowner-occupants. Such funding is intended to defray the costs incurred in the purchase of a comparable, decent, safe and sanitary residence.

The Redevelopment Agency has earmarked 20 percent of the available tax increment funds for use for low/moderate-income housing to help mitigate the impact of any residential housing shortage. **(Included in Project)**

Given the small number of residential units impacted, the impact of the project is less-than-significant and is further reduced by implementation of these mitigation measures.

2. Business Relocation

The City of San Jose and the Redevelopment Agency should administer the Relocation Assistance Programs, available to displaced businesses within the project site. **(Included in Project)**

These programs will be based upon existing State Relocation Assistance Policies. Each displaced business operation will be evaluated on a case-by-case basis to ensure the most appropriate course of action to fulfill that particular business' needs. **(Included in Project)**

The Redevelopment Agency of San Jose should assist each business into obtaining and becoming established in a suitable replacement location. **(Included in Project)**

Despite these mitigation measures which can reduce the project impact, the impact of the project on existing businesses is a significant and unavoidable impact.

O. ENERGY CONSUMPTION

EXISTING SETTING

In order to provide a better basis for comparison, this analysis follows the accepted practice of assessing energy usage in terms of the thermal value or heat content of the basic resource which is consumed (California Energy Commission, 1986). A Btu is the amount of heat needed to raise the temperature of a pound of water by one degree Farenheit.

The project site is currently in mixed commercial, light industrial and residential land uses. Table A-30 delineates the existing energy consumption for the project site.

IMPACTS

Table A-31 estimates the direct energy use for electricity and natural gas at the proposed arena facility (Sink-Combs-Dethlefs, 1987). The estimates are based on the assumption that there would be seasonal use of an ice rink for hockey (which would add approximately 20 percent to the electricity use).

It should be noted that in deriving the gasoline estimates, it was assumed that there would be 155 events per year, with an average attendance of 11,300 persons, an average vehicle capacity of three persons and an average trip length of seven miles with an average vehicle efficiency of 18 miles per gallon (Economic Research Associates, 1987).

TABLE A-30

EXISTING ENERGY CONSUMPTION

USE		YEARLY AMOUNT	TBtu's/YEAR
Project Site			
	Electric	1,288,000 kw-hours	13,200,000
	Nat. Gas	39,600 therms	3,960,000
			17,160,000
San Jose Residences			
	Electric	1,370,000,000 kw-hours	14,000,000,000
	Nat. Gas	134,000,000 therms	13,400,000,000
			27,400,000,000
All Other San Jose Users			
	Electric	2,620,000,000 kw-hours	26,800,000,000
	Nat. Gas	70,100,000 therms	7,010,000,000
			33,810,000,000
Total for San Jose			
	Electric	3,990,000,000 kw-hours	40,800,000,000
	Nat. Gas	204,100,000 therms	20,410,000,000
			61,210,000,000

Source: MO'C Physics Applied, 1987

The estimates in Table A-31 show that the proposed arena would use approximately 4.7 times more electricity than existing users and approximately 2.8 more times natural gas. Nonetheless, existing facilities of the Pacific Gas and Electric Company would be adequate to meet the demand created by an arena facility (Laberton, 1987).

It is only possible to speculate about secondary effects which could affect the significance of the estimates presented above. For example, the existing residences and businesses would be displaced with the implementation of the proposed project; consumption by these users would not be eliminated, but rather displaced to another location. The transportation component of the existing energy use has not been estimated; existing traffic would also be displaced to other roadways. Organizations presenting events, service firms and vendors would also account for some secondary energy use not included above.

TABLE A-31

ESTIMATED ENERGY CONSUMPTION FOR SITES A-1 and A-2

Electricity	6,000,000 kw hour	61,400,000
Natural Gas	110,000 therms (9 mil. cu. ft)	11,000,000
Gasoline	227,000 gallons	32,700,000
		105,100,000

Source: MO'C Physics Applied, 1987

Conversely, the significance of the transportation component of the energy use estimate is questionable when it is considered that the proposed arena's patrons may go on some other outing for entertainment if the arena were not constructed--perhaps to a facility more remote from the residences than the proposed arena location.

The development of the proposed arena facility in an area which is already served by existing urban services, and in an area where expanded urban services are planned for the future to accommodate the Julian-Stockton Redevelopment Area, would not have a significant impact on energy consumption.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and others that are not included but could reasonably be expected to reduce adverse energy consumption impacts identified in this analysis.

- Whereas such mitigating measures of environmental effects as noise walls, air pollution control devices and intersection improvements add cost to a development, energy conservation saves money. It may therefore be appropriate for the City of San Jose to require that energy-related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed structure.

  For example, the use of glass has a potential impact on energy use, as well as on the visual and aural aesthetics and on the cost of construction. Glazing affects energy consumption through its effect on radiative heat loss and solar heat gain. Natural lighting diminishes the need for artificial illumination. **(Not Presently Included in Project)**

- It has been previously stated that the hockey rink would add approximately one million kilowatt-hours per year to electricity consumption. The associated electricity cost of $50,000 to $100,000 would represent $2.50 to $5.00 per year for each of the 20,000 seats. Deletion of the hockey rink would reduce the projected annual electicity use by as much as 20 percent. **(Not Presently Included in Project)**

- For transportation impacts, the Santa Clara County Transportation Agency may provide special runs of buses and light rail vehicles to accommodate patrons at major events. **(Not Presently Included in Project)**

P. HAZARDOUS MATERIALS

EXISTING SETTING

1. Land Use

The project site is situated within an industrial district of the City of San Jose, where commercial activity is dominated by automotive-related businesses. Additional on-site facilities include Pacific Gas and Electric Company operations, the San Jose Metal Foundry, a refrigeration company and various retail shops. A Southern Pacific Railroad right-of-way exists along the western boundary of the project site.

2. Industrial Activity

Automotive Facilities

Established in 1946, California Auto Steam Cleaning (560 West St. Julian Street) presents a potential source for ground contamination. Site visits confirmed the presence of extensive ground stains associated with engine oils, unsealed 55-gallon drums of oil-based fluid and a limited area of concrete containment for engine-cleaning operations (Environmental Science Associates, 1987).

The Commercial Card-Lock Gasoline Station, located on the northwest corner of North Montgomery and West Santa Clara Streets, is the only gas station in operation within the project site. The Regional Water Quality Control Board (RWQCB) files do not indicate any past release of hazardous material from this operation (Regional Water Quality Control Board, 1987). Aerial photographs taken in 1954 and 1971 indicate that no other gasoline service stations existed during those periods in the local area.

Additional automotive shops are currently in operation within the project site; however, no available information indicated either the presence of underground storage tanks or incidents of hazardous material releases. Table A-32 presents additional automotive facilities which may pose a potential risk of ground contamination (Environmental Science Associates, 1987).

Pacific Gas and Electric Company

Pacific Gas and Electric Company's (PG&E) on-site operations include an underground network of natural gas/electrical utility lines and a 4.5-acre parcel of land (MT-SJ-SJO-1) located on West St. John Street near Montgomery Street. On-site facilities include several larger buildings. Service vehicles and field equipment are stored on the site.

Adjacent land uses are dominated by industrial facilities. A Southern Pacific Railroad right-of-way is located along the westerly boundary of the project site. A metal foundry and various retail shops lie to the east, across Montgomery Street. Automotive repair shops are located to the south of the PG&E property.

In mid-1986, PG&E conducted a preliminary study to assess ground contamination at this facility. McKesson Environmental Services obtained five

TABLE A-32

AUTOMOTIVE REPAIR FACILITIES WITHIN SITE A

Facility	Address	Potential Hazards
Premier Nissan Dealer	443 W. Santa Clara Street	Gasoline, diesel fuel, engine oils, and organic solvents
Follosco's Transmission	575 W. Santa Clara Street	Gasoline, engine oils, automotive transmission fluid, and organic solvents
City Radiator	33 N. Montgomery Street	Caustic acids, heavy metals, and organic solvents
Ron's Automotive Repair	223 N. Montgomery Street	Gasoline, diesel fuel, engine oils, and organic solvents
Leale's Transmission	80 N. Montgomery Street	Gasoline, engine oils, automotive transmission fluid, and organic solvents
Professional Auto Body	151 N. Autumn Street	Alcohols, oil-based paint/pigments, and organic solvents

Source: Environmental Science Associates, Inc. (1987)

samples from exposed top soil at this facility. Table A-33 indicates the concentrations of pollutants reported in the study (Pacific Gas and Electric Company, 1986). In late 1987, PG&E will complete an assessment update of ground contamination at this facility (Promani, 1987).

The original PG&E facility at this site was a coal gasification plant. The facility used a Lowe water-gas method of converting coal and petroleum oil into natural gas. From 1877 to 1929, natural gas was produced at a maximum annual capacity of 880-million cubic feet. Pacific Gas and Electric Company contour maps developed in 1922 indicate extensive on-site disposal of process waste streams containing coal tar and petroleum sludge. Waste oil for the process vessels was stored on-site (Pacific Gas and Electric Company, 1986).

The Pacific Gas and Electric Company currently maintains a natural gas-loading and service center at this location. On-site structures include a measurement and control office, natural gas-loading building, communication training office, welding shop and service garage for PG&E vehicles. On-site activities involve approximately 110 employees (Pacific Gas and Electric Company, 1986).

According to the State Water Resources Control Board (SWRCB) and PG&E, no underground storage tanks currently exist at this facility (Moreno, Promani, 1987). Although use of PCB-containing materials is routine in PG&E activities, publicly-available information sheds no light on the past uses of PCB-contaminated materials on the site (Promani, 1987). The Regional Water Quality Control Board (RWQCB) files contain no reports of hazardous material releases from this business (Regional Water Quality Control Board, 1987).

San Jose Foundry (525 West St. John Street)

On March 9, 1987, an exploratory well detected leakage from an on-site 550-gallon underground gasoline fuel storage tank (City of San Jose, HAZ-MAT Program, 1987). Spillage was attributed to tank overfill, resulting in contamination of the soil (vadose zone). However, the RWQCB had no knowledge of the quantity released, source of tank failure or beginning discharge date (Regional Water Quality Control Board, 1987). At this time, discharge has stopped and removal of the tank has been proposed by the facility owner. This metal foundry is a potential source of ground contamination due to heavy metal residues present in slag waste material. Aerial photographs taken in 1971 indicate active production operations. No underground storage tanks for this firm are registered with the SWRCB (Moreno, 1987).

Refrigeration Facility: West St. John Street

The specific services provided at this facility are unknown. On the assumption that the facility does manufacture, repair and/or store refrigeration systems, the potential for release of chlorinated refrigerants (i.e., Freon, carbon tetrachloride) does exist. In general, refrigerants such as carbon tetrachloride are very mobile and non-reactive, and are known carcinogens.

Southern Pacific Railroad

A Southern Pacific Railroad right-of-way has existed along the westerly boundary of the project site since before 1954 (Pacific Aerial Survey, 1954). Extensive ground stains are visible in the vicinity, indicating oil-based fluids.

TABLE A-33

PACIFIC GAS AND ELECTRIC COMPANY PROPERTY CONTAMINATION

Pollutant	Maximum Contaminant Drinking Water Levels, ppm(a)	Concentration, ppm Range	Average
Polycyclic Aromatic Hydrocarbons (PAH)	Not Defined	2-180	65
Lead	50	160-1400	734
Arsenic	50	14-29	22
Mercury	2	2-5	1
Cyanide	Not Defined		1

(a) Drinking water standards as reported in Title 22, California Administrative Code, Chapter 15, Section 64435.

Source: Pacific Gas and Electric Company (1987)

In mid-1986, an unauthorized release of waste oil was discovered at the old Southern Pacific Railroad roundhouse, located off-site near Lenzen and Stockton Streets (City of San Jose HAZ-MAT Program, 1986). Pooling of the product on exposed topsoil in several locations is common. Railways, as well as surrounding areas, have constant spillage of waste oil during normal operating procedures. A preliminary investigation was conducted by City of San Jose hazardous material inspectors, but no other actions have been taken by the City of San Jose, the Department of Health Services or the RWQCB (Afong, Endrada, Callahan, 1987).

The Southern Pacific Railroad depot, located off-site near 65 Cahill Street, has no underground storage tanks registered with the SWRCB (Moreno, 1987).

Non-Industrial Activity

Limited residential housing is located along North Autumn Street, north of West St. John Street. No schools, hospitals, retirement homes or other sensitive land uses exist within a one-half mile radius of the project site.

POTENTIALLY SIGNIFICANT IMPACTS

The regulation of hazardous materials has grown substantially since 1970. Many State and Local programs are still being developed. Although many potential sources exist, information regarding leakage and storage of hazardous material is generally limited to recent activities and large-scale operations.

In June, 1987, the City of San Jose Fire Department's Hazardous Materials (HAZ-MAT) Program submitted to the San Jose Department of City Planning a site assessment study for the proposed San Jose Arena project. The preliminary investigations indicated that the study may be incomplete; several underground storage tanks and incidents involving ground contamination associated with the proposed sites (confirmed from other sources) were not discussed in the study. Although the study revealed several unrelated incidents associated with the release of hazardous materials within the project site, no information was provided to indicate the quantity, source or proximity of the ground contamination to the site.

Also included within the study are documents which confirm the release of xylene, gasoline and bunker oil from at least seven underground storage tanks within the proposed arena site which have not otherwise been confirmed by agency documents, corporate assessment studies, personal interviews or site visits. Although the study does not provide the location, quantity released, length of service, construction material or current status associated with the tanks, soil testing and identification prior to development wuld confirm the presence or absence of hazardous contamination.

1. <u>On-Site Hazards</u>

Public Exposure

Construction of the proposed arena would likely increase the level of acute exposure from existing hazards. Public access within the project site is currently limited to local employees, commuter traffic and local residents. A Capacity attendance of 20,000 persons is likely at the proposed arena during performances.

The proposed project would probably reduce the chronic exposure level from existing hazards. The number of employees currently at the site is likely in excess of those required to maintain the proposed arena operations. Relocation of existing residential housing would further reduce, on a long-term basis, the number of individuals exposed to hazardous substances. Public occupancy would be short-term, typically less than four-hours. Non-public occupants such as administrative, maintenance, sanitation and security personnel would probably be on the project site approximately 40-hours per week.

Therefore, the proposed project would have a nonsignificant impact for on-site hazards.

Hazardous Materials

The proposed arena is not expected to expose occupants to new sources of hazardous materials. Rather, project construction would reduce the activity of existing generators, handlers and users of hazardous materials.

Many potential sources of hazards now exist within the project site. The PG&E property presents the largest source for possible ground contamination. Due to the extensive nature of petroleum residues on-site, clean-up of the site would likely require excavation of the site (Pacific Gas and Electric Company, 1986). Clean-up would be required prior to development.

The proposed project would not have a significant impact resulting from hazardous materials.

Utility Lines

The proposed project would require relocating an extensive underground network of PG&E natural gas and electrical transmission lines. Relocation of the lines would require extensive excavation within the project site, and subsequent re-installation on nearby land. The Pacific Gas and Electric Company recently submitted an economic feasibility study to the City of San Jose with regard to the measures required to relocate existing utility lines.

The relocation of utilities would not be a significant impact.

Fire Hazards

A large audience in attendance at the proposed arena would increase the potential fire hazards due to increased arena activity, increased energy requirements and a potential for human error. Handling and storage of flammable materials at the arena would be limited to maintenance activities.

Proper and safe handling measures would reduce the potential impact to a nonsignificant impact.

Emergencies and Evacuations

The proposed arena would have an Emergency Contingency Plan that would outline emergency procedures, including: arena evacuation, police and fire response and medical care facilities.

This would reduce the potential impact to a less than significant level.

2. Off-Site Hazards

Airborne Releases

In-bound aircraft to the San Jose International Airport could occasionally expose arena occupants to excessive levels of carbon monoxide (CO) and respirable particulate matter under 10-microns. Potential impacts of air pollutants on future air quality and sensitive land uses are addressed elsewhere in this report.

No petroleum refineries or chemical producers exist within two miles of the proposed arena which could present an immediate hazard to project occupants through accidental release of hazardous pollutants. However, exposure to hazardous materials could result from accidents involving heavy trucks transporting volatile hazardous materials along local and adjacent roadways.

Utility Lines

In the event of an earthquake, off-site gas mains may pose a fire hazard to occupants utilizing the proposed arena.

Transportation Hazards

The absence of accident rate data for the roadways providing access to the project site prevents a quantifiable analysis of the potential for traffic accidents involving hazardous materials. However, the 1986 State-wide accident rate average for injury and fatality-related automobile accidents is 0.52 per million vehicle miles (MVM). The 1986 average for all automobile accidents (property damage, injury and fatality) is 1.03 MVM, State-wide (Environmental Science Associates, 1986).

A Southern Pacific Railroad right-of-way is located adjacent to the western boundary of the project site. During an accident that involved the release of volatile hazardous materials, the predominately northwesterly winds could quickly transport hazardous emissions from rail cars towards the proposed arena site.

In-bound commercial air traffic to the San Jose International Airport passes directly over the project site. As a result, the arena patrons could be exposed to excessive noise levels and engine exhaust emissions.

Hydrology

The influence on the project site of off-site ground contamination resulting from subsurface transport of pollutants is unknown. Although the Santa Clara Valley Water District monitors the area for well contamination, subsurface flow direction and water table level, such information is not readily available to the public.

Therefore, although there is the potential for off-site hazards to have a significant impact, the continued safeguards provided for these hazards would reduce the impact to a less than significant level on arena operations and patrons.

MITIGATION MEASURES

The following are mitigation measures that are to be included in the project and others that are not included but could reasonably be expected to reduce the hazardous material impacts identified in this analysis.

- Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. Prior to 1980, regulatory agencies lacked information regarding handling, transportation and storage of hazardous materials. As a result, site assessment would require sampling at several potential sources of ground contamination within the site. **(Included in Project)**

- A site-specific plan for clean-up activities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Included in Project)**

- A closure plan would be required for determining the final disposition of the project site. **(Included in Project)**

- Any site-specific clean-up of contamination will be to the satisfaction of the Department of Health Services and the Regional Water Quality Control Board. **(Included in Project)**

Q. AIRCRAFT SAFETY

EXISTING SETTING

The project site is located approximately 2.2 miles southeasterly of the San Jose International Airport. Aircraft using Runway 30-Left make their final approach along a line which crosses directly over the project site. The interrelationship between the project site and the airport, from an environmental standpoint, is defined by potential noise and safety/air space conflict factors. The importance of these airport operational factors is given further credence by the fact that portions of the land area between the project site and the airport boundary are being acquired in order to satisfy State noise criteria, as well as Federal Aviation Administration "Clear Zone" requirements.

The conditions relating to aircraft noise effects experienced on the project site are discussed in further detail in OART TWO, SECTION I., F. COMMUNITY NOISE of this report.

1. Regulatory Agencies

The Federal Aviation Administration (FAA) is the regulatory agency for aircraft operations, safety and air space use. The FAA regulations, Part 77, require the review of development plans for any project which may affect airport operations, either by intrusion into air space or incompatible land uses. The criteria contained in FAA, Part 77, was used by the City of San Jose, and adopted by the San Jose City Council, to develop a map indicating the air space obstruction surfaces for the San Jose International Airport. The elevations shown are maximum suggested building heights which would still allow for safe clearance by

overflying aircrafts. Should any proposed structures exceed the FAA height limit restrictions, the development proposal would be reviewed by the FAA to ascertain the existence, if any, of a hazard to navigation.

After the filing of a "Notice of Proposed Construction or Alteration," the proposed project would be subject to review by the FAA if the project plans called for:

- A development which would include building elevations in excess of 200 feet above the ground surface; or

- A project which would contain elevations greater than an arbitrary height calculated by floor area ratios, based upon the project area's distance fronm the runways and the runway's length.

For the San Jose International Airport area, a "Notice of Proposed Construction or Alteration" must be filed with the FAA for any development proposal located within 20,000 feet of the nearest runway, or when a proposed structure would penetrate a theoretical slope plane of 100 feet (horizontal) to one foot (vertical).

2. Site Characteristics

The project site is situated at an elevation of approximately 80 feet above mean sea level (Lewis, 1987). As dictated by the City of San Jose map controlling building heights in the project area, estimated maximum elevation at the project site is approximately 282 feet above mean sea level. By subtracting the existing elevation of the project site, it is estimated that structures on the project site cannot exceed a height of 202 feet above grade (Lewis, 1987).

3. Aircraft Overflight Clearances

Aircraft overflight clearances of the project site are most consistent during the final approach to Runway 30-Left. During this phase of the landing cycle, the aircrafts are descending along a 35:1 slope. In the vicinity of the project site, approaching aircraft would be approximately 1,500 feet above ground level.

Aircraft departing from San Jose International Airport would overfly the project site approximately 10 percent of the time, due to the prevailing northwesterly winds. Although the higher power settings required for take off/climb out produce higher perceived noise levels, the aircraft (particularly commercial jets) are at a greater altitude above the project site. A precise elevation is not available, as the aircraft altitude is based upon a number of factors (i.e., load, atmospheric conditions, zero flap speed required for power reduction for noise abatement). A general rate of climb forecast would provide for climb angles as steep as 7:1. Using this figure, an aircraft taking off could be as much as 1,100 feet above the project site during normal operations.

4. Record of Accidents at San Jose International Airport

According to the Airport Operations staff, the following are the more significant accidents occurring in the vicinity of San Jose International Airport (Howard, Needles, Tammen and Bergendorf, 1986):

- Mid-air collision, Cessna 172 and Cessna 310; accident occurred east of Hyatt House (aircraft fell at the Hertz operation on North First Street); three persons killed (four to five years ago).

- Mid-air collision, Cherokee 180 and Cessna 172; San Jose Main Library was the location of the accident; one killed, two injured (four to five years ago).

- Cessna 150, ran out of fuel, came down in Columbus Park; accident occurred on approach; no injuries (seven to eight years ago).

- Cessna 150, engine failure; landed on Emory Street; no injuries.

- Cessna 210, crashed in Great America parking lot; ran out of fuel (seven to eight years ago).

- Cessna 172, engine failure, caught on high tension wires at the Southern Pacific Railroad tracks; no injuries (12 to 15 years ago).

- Twin Beech (B-50) ran out of fuel, crashed at National Guard Armory on Interstate 880; no injuries (15 years ago).

POTENTIALLY SIGNIFICANT IMPACTS

1. Accident Potential

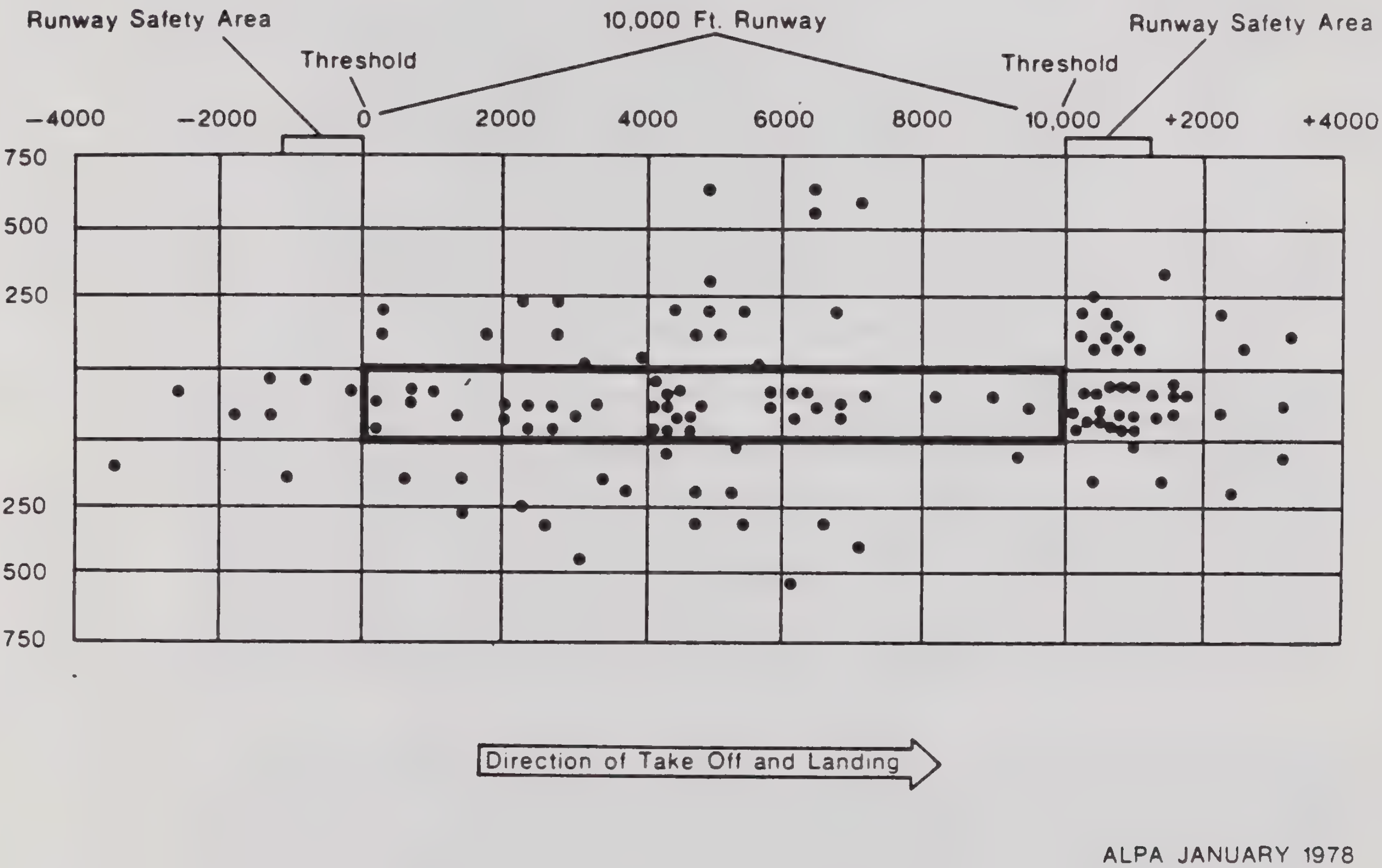
The analysis of aircraft accident potential was applied to both air-carrier aircraft and general aviation aircraft. In the analysis that follows, air-carrier aircraft are defined as aircraft of 30 or more seats operated under Part 121 of the Federal Aviation regulations. General aviation aircraft include high performance, jet-powered aircraft such as the Learjet, Cessna Citation and Gulfstream II and III; commuter airline aircraft, including Beech 99s (15 seats) and Embraer Bandeirantes (18 seats); and, light, propeller-driven aircraft. Data on accidents and on typical flight tracks use the same classification. In terms of loss of life or property to those on the ground resulting from an accident, the risk is greater for an air-carrier aircraft than for a general aviation aircraft. However, the size, speed and fuel capacity of the larger aircraft in the general aviation category is such that these must be considered in establishing areas for protection (Howard, Neddles, Tammen and Bergendorf, 1986).

The data on aircraft accidents around airports, and the development of specific criteria for acceptable land uses in areas susceptible to aircraft accident is sparse. The primary sources of data on accident locations examined are (Howard, Needles, Tammen and Bergendorf, 1986):

- Airline Pilots Association (ALPA);
- National Transportation Safety Board (NTSB); and
- Military.

Distribution of Aircraft Accidents

The latest work by the ALPA was published in 1978. It evaluated the location of 125 air carrier accidents at civilian airports between 1964 and 1977, with respect to the runway ends (see Figure A-42). Seven accidents occurred within 2,000 feet



SOURCE: CITY OF SAN JOSE(1986)

AIRLINE PILOTS ASSOCIATION ACCIDENT ANALYSIS FIGURE A-42

of the landing threshold, and 40 accidents occurred within 2,000 feet of the departure end of the runway. Of those evaluated, the accident that was most-remote from the runway end was 3,300 feet beyond the departure end of the runway. Thirty percent of the air carrier-related accidents related to landings and 12 percent to takeoffs (Howard, Needles, Tammen and Bergendorf, 1986).

The NTSB Annual Air Carrier Accident Report for the period 1968 through 1978 described 502 air carrier aircraft accidents. Accident locations were as follows (Howard, Needles, Tammen and Bergendorf, 1986):

- 248 (49 percent) were on-airport;
- 17 (three percent) were in the pattern;
- 7 were within 0.25 mile of the runway ends;
- 3 were between 0.25 and 0.5 mile of the runway ends;
- 2 were between 0.5 and 0.75 mile of the runway ends;
- 5 were between 0.75 and 1.0 mile of the runway ends;
- 5 were between 1.0 and 2.0 miles of the runway ends;
- 5 were between 2.0 and 3.0 miles of the runway ends;
- 3 were between 3.0 and 4.0 miles of the runway ends;
- 5 were between 4.0 and 5.0 miles of the runway ends; and
- 202 (40 percent) were more than 5.0 miles from the runway end.

Fifty-six percent of the reported accidents occurred on the airport or off the airport within one mile of the runway ends. Eighty-nine percent of the reported accidents occurred on the runway, or off of the runway and more than five miles from the runway ends. The series shows a concentration of accidents on the airport (49 percent), within one mile of the runway ends (three percent), and in the pattern (three percent), with a major reduction beyond one mile from the runway ends. The most recent NTSB analysis of United States air carrier accidents (1964 through 1981) shows the same concentration of accidents on the airport (52 percent) and within one mile of the airport (six percent), with a significant reduction in accidents per mile beyond one mile.

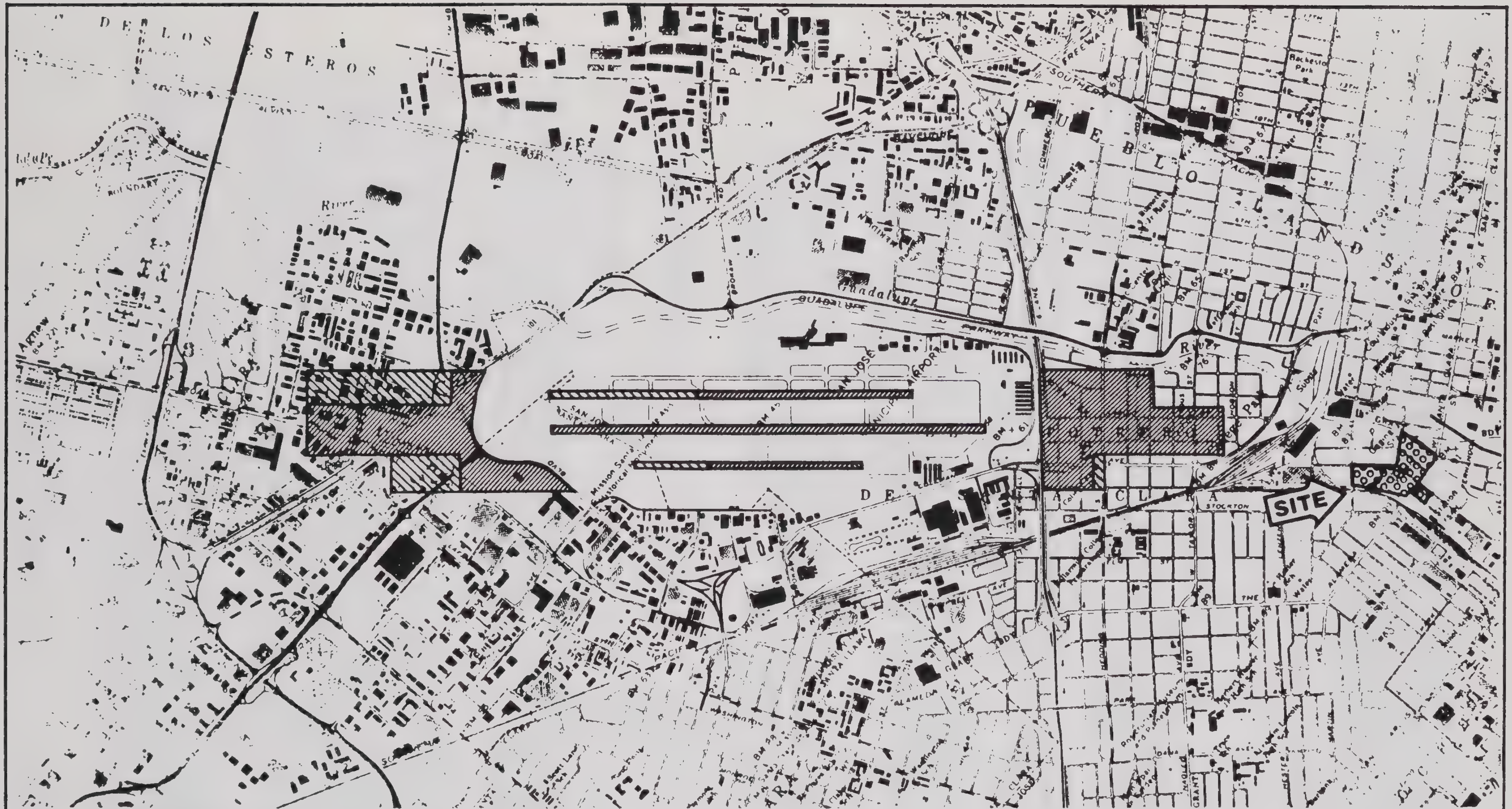
The NTSB analysis, supported by that of the ALPA, provides the best available information on the location of air carrier aircraft accidents relative to runways. The incidence of accidents is found to be concentrated in a rectangular area, 1,000 feet wide by 5,000 feet long, with a marked tailing-off of events beyond one mile from the runway end. Accidents to general aviation aircraft (including high-performance, jet-powered and commuter aircraft) show a similar concentration in the area within one mile of the runway ends.

The application of these 1,000 foot by 5,000 foot rectangles to the runway ends is shown in Figure A-43. As can be seen, the project site is not located in an accident potential area.

Therefore, although there exists the potential for an accident, there also exists data, as well as safety procedures and operations, that reduce this potential to a less than significant impact in terms of accident potential.

2. <u>Height of Proposed Structure</u>

As stated in the PART ONE, SECTION I., DESCRIPTION OF THE PROPOSED PROJECT the proposed arena facility is anticipated to be approximately 65 feet



ACCIDENT POTENTIAL AREAS

- EXISTING RUNWAYS
- PROPOSED EXTENSIONS

SOURCE: CITY OF SAN JOSE (1986)

AIRCRAFT ACCIDENT POTENTIAL AREAS

SCALE
2000 0 2000

FIGURE A-43

in height. The proposed height is in conformance with the allowable height (217 feet) on the project site, as mandated by FAA Regulations, Part 77. Accordingly, the proposed project would not cause conflicts with normal visual flight rules operations at the San Jose International Airport. Futhermore, implementation of the proposed project would not have a significant impact on aircraft safety.

The height of the proposed stucture would not have a significant impact on the environment.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse aircraft safety impacts identified in this analysis.

- Any proposed development on the project site would be subject to evaluation by the FAA, subsequent to the filing of the Notice of Proposed Construction or Alteration. **(Not Presently Included in Project)**

- Structural lighting is recommended to improve the visibility of the proposed project, particularly if the structure(s) approaches or exceeds the FAA/City of San Jose height limit for this site (this is not anticipated to be an impact). **(Not Presently Included in Project)**

- While the FAA has no direct authority to approve or deny a project identified as a hazard to navigation, their input will be considered as part of the decision-making process prior to the certification of any development proposal on the project site. **(Included in Project)**

R. URBAN ECONOMICS

EXISTING SETTING

This analysis considers the potential secondary economic growth (i.e., restaurants, cocktail lounges and other commercial businesses which might serve the proposed arena facility and its patrons) which could result from the implementation and construction of the proposed arena facility.

According to an economic evaluation of the proposed arena facility prepared for the City of San Jose by Economic Research Associates (ERA) in February, 1987, the expected market area for the project site includes southern San Mateo County on the peninsula, the cities of Fremont and Newark in southern Alameda County and the counties of Santa Clara and Santa Cruz. Two other arena facilities in the San Francisco Bay Area currently competing with the proposed San Jose Arena (and particularly defining the market area) are the Oakland/Alameda County Coliseum (located in Oakland, California) and the Cow Palace, located up the peninsula in Daly City.

Aside from existing commercial uses along Santa Clara Street (which include a car dealership and its associated automobile repair shop), the project site consists primarily of older industrial buildings and yard storage. The closest bar or restaurant operation is located at West Julian and Montgomery Streets (a local cocktail bar).

Other than this operation, there is a minimal amount of commercial activity surrounding this site which might be expected to attract the proposed arena's patrons. The project site is within walking distance of downtown San Jose, but it is separated by the Guadalupe River and the State Route 87 overpass.

POTENTIALLY SIGNIFICANT IMPACTS

The San Jose Metropolitan Area is primarily oriented to automobile transportation rather than other modes of transit. Therefore, the use of nearby parking lots, garages and on-site parking is planned in recognition of this. The arena operator and show promoters will want enough parking to accommodate patrons, and the City of San Jose is likely to require on-site parking to minimize impacts to surrounding properties.

Although the project site allows for less on-site parking due to the nearby garages and light rail system, the physical area of the surface lots will still be substantial. Because the arena facility is planned as an indoor facility, many events are expected to occur during the evening hours. Particularly during the winter months, patrons will arrive and leave the arena area after nightfall. The typical expected attendance pattern is for patrons to drive to the site, park as close to the arena facility as possible, and return to their cars and drive home without other trips or activities. This is especially true for nighttime events where patrons must cross a large, exposed parking lot or walk through a commercial and/or industrial area which tends to be largely deserted at night.

For daytime events, it is worth mentioning that California sports fans have a time-honored tradition of "tailgating" or having parking lot parties. Arriving at the facility early and picnicking before game time has many advantages: patrons may avoid the stress of pre-game traffic, choose a parking space close to the arena or stadium and, to a certain extent, be exposed to crowd excitement without being overwhelmed by people.

It is also noted that the performance or game is the event of choice and the focal point of the patron's trip. It is usually most convenient (and for many, less expensive) to satisfy the need for a light meal or drink from concession stands at the arena. It is an increasing trend for promoters to provide concessions. Families with small children may also prefer this option, as it avoids the logistical problems and possible time delays associated with eating in restaurants. Parents will also worry about being separated from their children in crowds. This possibility is reduced somewhat by limiting travel plans.

For many persons, attending a live event is enhanced by the presence of a crowd, but most people will want the crowd to be well mannered and orderly. There remains a certain level of unease due to unpredictable circumstances. For these reasons, families and other persons attending an event together will tend to follow a fairly strict pattern of going from their car into the arena, and then leaving straight for their car and heading home at the end of the event.

1. Impact of Other Arena Facilities

   In considering whether the proposed arena facility will act as a local stimulus to commercial development or increased patronage at local hotels, restaurants and bars, three potential groups of patrons can be identified. They are:

   - Arena event patrons;

- Players or performers participating in arena events; and
- Persons returning to the arena area due to their exposure to interesting stores or shops while travelling to or from the arena.

In estimating the impact of the arena as a cataylst for new commercial development in the vicinity of the project site, neighborhoods surrounding the Oakland/Alameda County Coliseum and the Cow Palace were examined. Additionally, the Economic Research Associates report (February, 1987), which provides extensive information regarding the impact of other similar sports arenas in the western United States, was reviewed. Overall, it is the opinion of Mills-Carneghi-Bautovich, Inc. (1987), that the presence of the proposed arena will not have a significant effect on surrounding land uses by generating demand for new commercial businesses such as restaurants, bars or shops.

Arena Players and Performers

One of the most major financial impacts of the arenas studied by ERA was the increase in business for local hotels and motels due to the out-of-town sports players and performers appearing at the arena. It has been projected that the proposed San Jose arena facility could generate a lodging demand of 14,000 room-nights annually. Assuming an average room rate of $60.00 per night creates a total revenue of $840,000. The City of San Jose currently collects a room tax of eight-percent. This is equivalent to $67,200 in additional revenues on an annual basis once the proposed arena operation is stabilized (Economic Research Associates, 1987).

Arena Patrons

As noted above, the attendance of patrons to sporting and entertainment events at an arena such as that proposed in San Jose tends to be of an intermittent nature, and not constant or large enough to support new businesses. Additionally, the attendance patterns and methods of transportation further discourage this.

The Oakland/Alameda County Coliseum has been in operation since 1966, and it has an estimated 200 event days annually. It is located with convenient access to a Bay Area Rapid Transit (BART) station and Interstate 880 (the Nimitz Freeway). It has been observed that while events occurring at the Coliseum do create an increment of business for restaurants, bars and hotels in the Hegenberger Road area, the major stimulus for commercial development has been the growth of Oakland International Airport (Mills-Carneghi-Bautovich, 1987).

The Cow Palace in Daly City was established in the mid-1930's, and has an estimated 145 annual event days. No significant commercial development exists in the surrounding neighborhood, which is primarily industrial to the south and residential in the other areas. One new fast-food restaurant was observed in a field survey. The case of the Cow Palace is a better test of the catalyzing force, or stimulus, of the arena patrons' presence in the area. There are no overlapping influences here, such as the Oakland International Airport, which affects the Coliseum location.

The ERA report notes that interviews with persons knowledgeable with experiences in Dallas, Indianapolis, Houston and Seattle concluded that patrons

of the arenas in these cities contributed only a nominal portion of the demand which would be necessary to support commercial businesses. While sales of existing businesses might increase slightly, the effect of the arena patrons has not been significant enough to spur additional development (Economic Research Associates, 1987).

Persons Returning to the Arena Area

A final source of economic stimulation to area businesses could be persons who become interested in the downtown due to their trip to the arena. The evidence from other cities regarding this potential is somewhat conflicting. It appears that this possibility is greatest if Alternative Site A is chosen, as it would be centrally-located in Santa Clara Street, which is a major downtown arterial.

2. Identity

A less-tangible effect of locating the proposed arena facility close by the downtown area is the benefit of identity. It is generally agreed that patrons attending arena events from outside San Jose or Santa Clara County may for the first time refresh and revise otherwise limited impressions of the area. A significant amount of new development has occurred in the downtown area and major improvements are also expected to be completed by the end of the decade. For many people, attending the arena may be their first opportunity to become familiar with a new freeway route, the light rail system and to view the downtown's expanding skyline. It is possible that this familiarity may generate additional shopping trips or visits to the downtown, outside of attending sports or entertainment events.

Another significant factor possibly influencing economic growth is increased revenue for bars and restaurants near the proposed arena facility. This will depend on whether or not San Jose becomes host to an NBA team. The presence of a home team can create a strong identity and civic pride, and also increase popularity at establishments where players, who become local celebrities in their own right, may gather. A successful year can put an area or town "on the map." This may be a temporary phenomenon for sports fans from outside the area, but is likely to inspire long-lasting loyalty on a more local basis.

3. Conclusion - Level of Impact

It is concluded that the construction and operation of the proposed San Jose arena facility would have a nonsignificant impact on existing commercial businesses. Furthermore, it is unlikely that the demand generated by the event patrons, visiting teams or performers would be sufficient to cause additional development. These conclusions are supported by market research and the review of other Bay Area arenas, as well as observations regarding attendance patterns for most sporting and entertainment events. Additionally, the proposed arena facility would have a less than significant impact on secondary economic growth resulting from implementation of the proposed project.

MITIGATION MEASURES

There are no significant impacts upon existing and future growth and therefore no mitigation measures are proposed for urban economic impacts.

SECTION II

ALTERNATIVES TO THE PROPOSED PROJECT

As stated in Section 15126 (d) of the California Environmental Quality Act, it is the responsibility of the Environmental Impact Report to describe a range of reasonable alternatives to the proposed project or to the location of the project, which could feasibly attain the basic objectives of the proposed project. Additionally, the environmental document should evaluate the comparative merits of the alternatives. Four alternatives to the proposed project were examined and ompared to the proposed project in order to compare relative impacts. These alternatives included:

- The "No Project" Alternative;
- Alternative locations for the proposed Arena Facility;
- A reduced seating capacity (14,000 seats) for the proposed project site; and
- An alternative that would impede the project objective but eliminate or reduce significant environmental effets.

The following is an evaluation of the likely environmental effects associated with each of the proposed alternatives.

A. NO PROJECT ALTERNATIVE

The no project alternatives assumes that the proposed San Jose Arena Facility would not be built on the project site and that the existing land uses would remain in their current state. The project site would retain its present appearance and character pending future development proposals. Implementation of this alternative would postpone the environmental impacts associated with the proposed arena facility as previously discussed in this document.

The no project alternative is the environmentally preferable alternative since it would avoid the adverse impacts of the project. The adverse impact of the project that would be avoided include the following:

- Relocation of loss of the two residences and 20 to 30 businesses that are located within the boundaries of the project site;
- Impacts to the neighborhoods in the vicinity of the arena that would change the neighborhood character;
- Removal of identified locally historic structures on their original sites;
- Generation of traffic that results in significant traffic conjestion at some locations during some arena events.

Adverse effects associated with the implementation of the no project alternative would include the following:

- The economic and cultural benefits associated with the operation of an arena facility would not be realized by the City of San Jose.

B. ALTERNATIVE LOCATION FOR THE PROPOSED PROJECT

The alternative of another location assumes that the proposed San Jose Arena Facility project would be developed as proposed but, at another location within the the City of San Jose would be considered.

In addition to the project site (Site A), this environmental document assessed the impacts associated with the development of an arena facility at two other locations (Site B and Site C). The first of these locations (Site B) is in the immediate project vicinity on the northeasterly corner of Julian and Montgomery Streets. Impacts associated with this alternative project site would be similar to those of the proposed site (Site A). However traffic generated by the proposed project if located on Site B, would impacts approximately three fewer intersections than the traffic associated with the development on the proposed project site. Additionally, the visual impacts associated with the implementation of the proposed project at Site B would be less significant than at Site A location.

Some of the impacts identified in the text of this document for project Site A (i.e., historic and cultural resources, and air quality) would be similar to those resulting from development of the arena on Site B. Development of the arena on Site B is constrianed on the westerly side of the Guadalupe River by drainage and flood control improvements. Development on Site B would require the construction of new bridges and/or bridge widening across the riparian habitat of the Guadalupe River. The bridge construction would result in significant impacts to vegetation and wildlife habitat that is present in the Guadalupe River channel.

A second alternative location that was analyzed in this environmental document is an arena site on the southeasterly corner of State Route 237 and Zanker Road in the City of San Jose. This site has been refered to as "Site C" in this Environmental Impact Report. Due to its suburban location, impacts associated with this alternative site would not be as great as those described for the proposed project site. Traffic impacts associated with the development of an arena facility on this alternative location (Site C) would only impact five intersections in the project vicinity, compared with the 17 intersections impacted by the proposed project. Although some archaelogical artifacts were found on this alternative site, none were located in areas proposed for development.

The alternative of developing an arena on Site C would have less impacts that at Site A or Site B. Impacts could be further reduced by developing a smaller capacity arena, approximaterly 14,000 seats on Site C. The alternative of developing a 14,000 seat capacity arena would have the least impacts of all the alternatives, except the no project alternative, and would therefore be the environmentally perfered alternative.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

C. REDUCED CAPACITY ALTERNATIVE

The reduced capacity alternative considers the development of an arena facility with a maximum attendance level of 14,000 persons. This capacity would represent a 20 percent reduction in attendance than analyzed for the 17,500 person attendance level and a 30 percent reduction in attendance for the 20,000 person attendance level. Beneficial effects associated with this reduced capacity alternative would be most

noticeable from a traffic and circulation viewpoint. With the reduced capacity alternative, traffic impacts would be reflect a 20 to 30 percent improvement over the proposed project, depending on the attendance level. However, other impacts identified (i.e., land use, archaeologic and historic resources, wildlife and vegetation, residential and business relocation) would still be affected, since the reduced capacity alternative assumes development on the proposed project site.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

D. ALTERNATIVE THAT SUBSTANTIALLY IMPEDES THE PROJECT OBJECTIVES BUT ELIMINATES OR REDUCES SIGNIFICANT ENVIRONMENTAL EFFECTS

Implementation of the Julian-Stockton Master Plan is expected to eliminate or reduce all of the identified impacts to an nonsignificant level. The overall objective of the Julian-Stockton Master Plan is to implement the City of San Jose General Plan and policies of the City in the development of the area. The objectives of the actions proposed by the Julian-Stockton Master Plan include (Redevelopment Agency of the City of San Jose, 1987):

- Strengthen and expand the community's tax base through an effective program for economic development and improved employment opportunities;
- Provide for the installation of capital improvements (public and private) necessary to support such a program;
- Remove structurally substandard buildings, eliminate blighting influences, remove impediments to land development and achieve changes in land uses; and,
- Encourage the development of labor-intensive industries for the purpose of providing expanded employment opportunities.

Since the majority of the jobs generated in the Julian-Stockton area would conform to normal business hours (i.e., 8:00 AM to 5:00 PM), areas surrounding the project site would not be subjected to increased noise and disturbances in the evening and nighttime hours. However, an influx of jobs in this area would still create unacceptable traffic conditions. As a result, some of the traffic improvements proposed as part of the arena facility project would still need to be constructed upon implementation of the Julian-Stockton Master Plan. Additionally, some of the other impacts identified in this environmental document would need to be addressed should another development proposal be considered for the project site.

SECTION III

SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

Implementation of the proposed project would potentially result in eight significant unavoidable impacts. These impacts are listed below along with the section of this Environmental Impact Report where they are described.

1. Neighborhood Impacts - PART TWO, SECTION I., A. LAND USE

2. Traffic Circulation Impacts - PART TWO, SECTION I., B. TRAFFIC CIRCULATION

3. Pedestrian Crosswalk Impacts - PART TWO, SECTION I., D. PEDESTRIAN AND NEIGHBORHOOD ANALYSIS

4. Air Quality Impacts - PART TWO, SECTION I., E. CLIMATE AND AIR QUALITY

5. Noise Impacts - PART TWO, SECTION I., F. COMMUNITY NOISE

6. Archaeological Impacts - PART TWO, SECTIOIN I., L. ARCHAEOLOGICAL RESOURCES

7. Historical Impacts - PART TWO, SECTION I., M. HISTORICAL RESOURCES

8. Dislocation/Relocation of Businesses - PART TWO, SECTION I., N. RESIDENTIAL AND BUSINESS RELOCATION

All of the other impacts can be mitigated to a nonsignificant level or are not significant impacts.

SECTION IV

GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

A project is generally considered to be growth-inducing if it can foster economic or population growth, or the construction of additional housing (either directly or indirectly) in the surrounding environment. Included in this are projects which would remove obstacles to population growth. Growth is often induced through one or more of the following actions: 1) extending urban services into a previously unserved area; 2) extending a major roadway into a previously unserved area; or 3) establishing major new employment opportunities.

1. Urban Services

   The proposed arena facility project does not extend urban services (i.e., new water and/or sanitary sewer lines) to a new area. Existing service lines will be improved and upgraded, as necessary.

2. Roadways

   The proposed project does not include the construction of any new roadways. However, Riverfront Road, which will replace the existing Montgomery and Autumn Streets, will be constructed adjacent to the project site as part of the Guadalupe River Park Master Plan. The proposed project does involve the upgrading of existing intersections (i.e., acquisition of right-of-way, restriping of lanes). These improvements will be implemented to improve the circulation in the project area.

3. Employment

   Implementation of the proposed project would incrementally increase the employment opportunities in the project area. However, the project would not generate enough jobs to be considered growth-inducing.

4. Housing

   The proposed project will not generate any new housing opportunities.

SECTION V

CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

As stated in Section 15355 (b) of the California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report is required to describe the cumulative impacts from the proposed project. Cumulative impacts are the combined impacts of a proposed project added together with other closely related past present and reasonably foreseeable future projects. Future projects are projects that have been proposed and filed with the City of San Jose prior to the circulation of this Environmental Impact Report or development that is anticipated by Year-2000 in San Jose's General Plan. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This Environmental Impact Report addresses cumulative impacts from two perspectives. The first perspective is for Year-1991 when the proposed arena facility would become operational. In Year-1991 perspective, all existing and proposed development are considered in the background conditions and then the project impacts are added to these background conditions. The second perspective is for Year-2000, which is the horizon year of the San Jose General Plan. In Year-2000 perspective, all of the existing and planned development in the City's General Plan is considered with the background conditions and the arena facility project impacts are added to these background conditions.

The proposed 20,000 seat arena, together with other development that is existing or planned, could potentially result in significant impacts to traffic circulation, parking, air quality, noise, and urban services. Each of these potential cumulative impacts have been analyzed within their respective sections on this Environmental Impact Report and the cunclusions are summarized below.

A. TRAFFIC CIRCULATION

Cumulative traffic circulation impacts are presented in PART TWO, SECTION I., B. TRAFFIC CIRCULATION. This traffic analysis evaluated the traffic circulation impacts in Year-1991, taking into account traffic from exisitng development, approved but not constructed and occupied development and proposed development. Traffic from these developments was increased by adding an annual background growth factor to account for overall increases in traffic from development outside of the general project area but within the greater San Jose area. The project traffic was then added to derive cumulative traffic. The results of the cumulative traffic analysis showed that there would be significant cumulative traffic impacts at 14 intersections during the PM peak hour when 20,000 patrons attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would significant cumulative impacts at 13 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would impact only five intersections. The project includes improvements at these five intersections to mitigate the impacts.

The traffic analysis also evaluated the traffic circulation impacts in Year-2000, taking into account all of the development that is planned for in San Jose General Plan Horizon 2000. Year-2000 traffic is projected using the City of San Jose's traffic model, TRANPLAN, which includes all of the roadway improvements, transportation conditions that are planned for in Year-2000. Traffic from the arena facility was then added to this projected Year-2000 traffic. Traffic that would have been generated by other uses of the site was eliminated from the analysis. The results of the cumulative traffic analysis for Year-2000 showed that there would be significant cumulative

traffic impacts at 16 intersections during the PM peak hour when 20,000 patron attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would significant cumulative impacts at 11 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would impact only six intersections. The project includes improvements to mitigate impacts at five of the impacted intersections.

Even with the mitigation measures included in the project, the proposed 20,000 seat arena would result in significant cumulative traffic circulation impacts under some circumstances when taken together with traffic from other existing and planned development.

B. PARKING

Cumulative parking impacts are presented in PART TWO, SECTION I., C. PARKING ANALYSIS. This parking analysis evaluated the parking demand of the proposed arena together with parking demands of other existing and planned development. This parking analysis shows that there would be adequate off street parking in the project vicinity to meet the anticipated parking demands. Significant cumulative parking impacts would not result from the proposed arena facility together with other existing and planned development. Notwithstanding an adequate off street parking supply, there would be on street parking impacts in the neighborhoods surronding the arena site since it is free parking and would be a charge for nearly all of the other parking. This on street parking is a significant, but not a cumulative, impact.

C. AIR QUALITY

Cumulative air quality impacts are presented in PART TWO, SECTION I., E. CLIMATE AND AIR QUALITY. This air quality analysis was based upon the cumulative traffic analysis for Year-1991 and Year-2000, which takes into account the air pollution emissions from arena generated traffic as well as traffic from existing and planned development. The air quality analysis shows that there would be significant cumulative air quality impacts under worst case stagnate air conditions. These significant cumulative air quality impacts result from the total emissions including regional background air pollution cencentrations added to air pollution emissions generated by arena traffic and emissions from traffic associated with existing and proposed development.

D. COMMUNITY NOISE

Cumulative noise impacts were are presented in PART TWO, SECTION I., F. COMMUNITY NOISE. This noise analysis was based upon the cumulative traffic analysis for Year-1991 and Year-2000, as well as measured background noise levels which include air craft and railroad noises. The projected cumulative future noise levels would not exceed the noise standards established by San Jose's General Plan. These General Plan noise standards are expressed as averaged sound levels over a period of time and do not reflect single event sounds that can be disturbing such as pedestrian and autos leaving a neighborhood in the late evening. Late evening departures by arena patrons are expected to result in some noise impacts in the area surrounding the arena. These late evening noise impacts could be significant, but would not constitute a cumulative impact since there are no other projects or development being proposed that contribute to these late evening noises. Noise generated during construction of the arena facility would be a one time occurence limited to the construction phase of the project.

E. URBAN SERVICES

The proposed arena facility would result in increased demand for urban services beyond that which is presently required from the present use on the site. As described in PART TWO, SECTION II., J. URBAN SERVICES, the project would require increased services for: fire protection, police protection, water supply, sanitary sewers, wastewater treatment capacity, natural gas, electricity, telephones and solid waste. All of these services could be provided to the arena. There would be a cumulative impact upon these urban services from the arena together with all other existing and planned development. These cumulative demands upon urban services are collectively substantial but would not constitute a singificant impact since they are planned for by the utility suppliers and the City of San Jose. Impacts to City services including police protection, fire protection, sanitary sewers and wastewater treatment, are mitigated by Level of Service requirements established by San Jose's General Plan as program mitigation measures. These Level of Service requirements are implemented by only approving development that do not exceed the level of service. Since new development approvals are required to meet the program mitigation and Level of Service requirements, and since adequate levels of service are currently being provided and can serve the project, there would will not be significant cumulative impacts to urban services.

SECTION VI

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENACNE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between the local short-term uses of man's environment and the maintenance and enhancement of long-term productivity is often one of trade-offs or a balancing of social, economic and environmental impacts over time. In some cases, a relatively short-term benefit may have adverse cumulative effects. The opposite situation in which long-term benefits occur at the expense of short-term impacts is also possible. Decisions that influence the balancing of such impacts for this project are the responsibility of the City of San Jose as part of its policy and decision-making function.

The cumulative impacts of the proposed arena facility together with other existing and planned development would be: 1) Traffic Circulation; 2) Parking; 3) Air Quality; 4) Community Noise; and 5) Urban Services. Only two of these cumulative impacts are significant these are traffic circulation and air quality. The cumulative impacts have been previously described in PART TWO, SECTION V.

There would be six significant unavoidable impacts resulting from implementation of the proposed arena facility. The six unavoidable impacts are: 1) Neighborhood Impacts; 2) Traffic Circulation Impacts; 3) Air Quality Impacts; 4) Archaeological Impacts; 5) Historical Impacts; and 6) Dislocation/Relocation of Businesses.

In addition to the above cumulative impacts and significant unavoidable impacts, there would be short-term construction impacts that include construction traffic, localized construction vehicle and equipment noise, increased rates of air pollutant emissions on-site, and increased energy consumption. Also, there would be temporary visual impacts during construction, consumption of construction materials and increased construction employment.

Not withstanding these impacts, the arena facility is being proposed at this time because of the economic, cultural and community benefits that would be derived from it.

PART THREE

SAN JOSE ARENA FACILITY EIR

SITE B ANALYSIS

AUGUST 1987

SECTION I

SITE B

EXISTING SETTING, POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION MEASURES

A. LAND USE

EXISTING SETTING

1. Existing Land Uses

The existing land uses on the site are predominately industrial and commercial. The other two land uses on the site are the open space/drainage uses of the Guadalupe River channel and residential use of three single family homes. The moasic pattern of commercial, industrial and residential land use reflects a sequence of transitions that have occured over a long period of time in this older area of central San Jose (refer to Figure B-1). One of the two most recent and significant changes in the project area is the realignment and reconstruction of Julian Street along the southerly boundary of the site and the abandonment of the Old Julian Street alignment through much of the site. The other land use change in the project that had significant impacts to the area was the construction of State Route 87 along the easterly side of the Site (refer to Figures B-1 and B-2).

Nearly all of the area of the site east of Guadalupe River is developed for industrial uses, with the majority of the area being occupied by the Food Machinery Corporation (FMC) facility. Other industrial and commercial uses include manufacturing of wood building products, warehouse and distribution facilities yard storage, printing shop, and auto repair.

Within the site boundaries on the westerly side Guadalupe River, commercial land uses include a motorcycle shop and auto repair shop. Residential uses on this part of the site include two single family homes. A parking lot occupies nearly all of the area of the site north of Old Julian Street and west of the Guadalupe River.

2. Surrounding Land Uses

A mixture of land uses surround the site including transportation commercial industrial and residential. The State Route 87 freeway is located adjacent to the east of the site and effectively forms a barrier along this side of the site. Across State Route 87 from the site there are various commercial and industrial uses ranging from a modern high rise office building to a 50 year old warehouse used for distribution. Transportation uses occupy the land to the north of the site where a corridor composed of several railroad tracks are located connection with the main railroad switching yards for San Jose. Adjacent to the railroad tracks, and to the northwest of the site there is a large warehouse use. To the west of the site along Old Julian Street, there are commercial uses that include a golf supply

INDUSTRIAL

RESIDENTIAL

PUBLIC PARK

VACANT

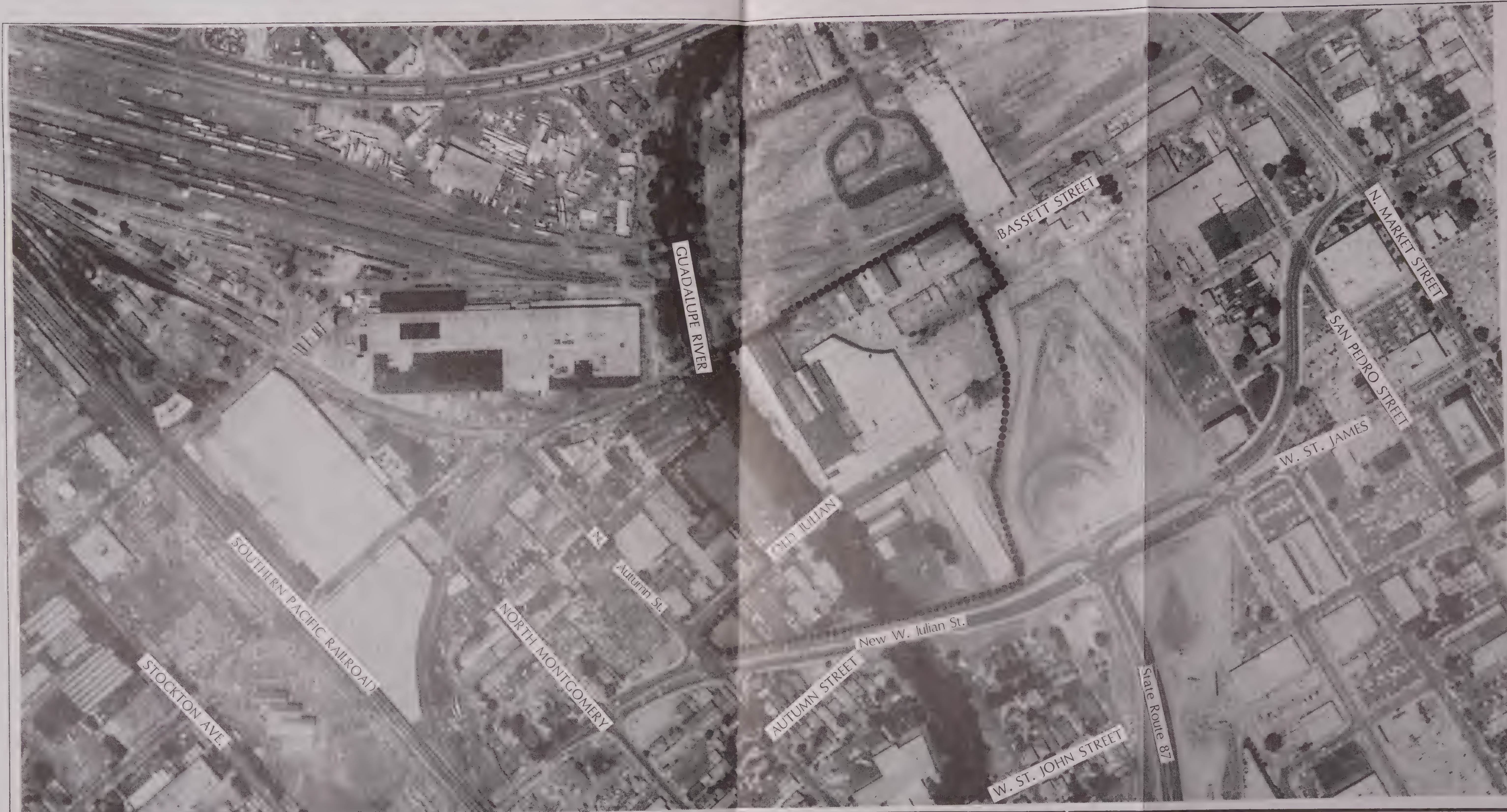
SOURCE: CITY OF SAN JOSE (1987)

EXISTING LAND USES

N

0 500 Feet

FIGURE B-1



PROJECT SITE AND ADJACENT LAND USES

N

1:300

Site B - Page 3

FIGURE B-2

and repair shop and tile distribution company. Along north Autumn Street, there is a mix of uses including old industrial buildings, a small one story multi family residential development, storage facility, and vacant land located to the north of the Howard Street alignment. A new two story office building is under construction on the north side of West Julian Street. Along North Montgomery Street, there are various form commercial uses including a professional office in a converted single family home, used muilding material storage yard, ice cream catering service, auto repair, and a drum container company. A shelter for the homelaess is located near the northern end of North Montgomery. Single family residences are located on the northern side of West Julian Street, west of North Montgomery street along with an auto repair shop.

To the south and southwest of the site across West Julian Street, there is a mixture of residential, commercial and industrial uses. On the westerly side of North Montgomery Street, commercial and industrial uses include auto repair and service auto storage yard, food distribution and PG&E (Pacific Gas and Electric) yard storage and shops. On the easterly side of North Montgomery Street there is a mixture of single family residences and commercial industrial including the San Jose Foundary. Commercial and industrial uses occupy all of the area south of West St. John Street except for two single family homes on the southwest corner of North Autumn Street and West St. John Street. There is a small neighborhood of single family homes along North Autumn Street and Autumn Court. Similarly, the remnant of a predominantly single family residential neighborhood on the easterly side of Guadalupe River along West St. John and River Street. There are a few comemrical uses mixed in this residential neighborhood including restraunts, and a taxicab company.

3. General Plan and Zoning Map Designations

The project site is currently zoned M-1 and M-4 (Manufacturing).

The City of San Jose's Horizon 2000 General Plan Land Use Map designates the project site for Combined Industrial/Commercial and Public Park/Open Space land uses. The Public Park/Open Space land use is designated along the Guadalupe River. The proposed project is not consistent with the present City of San Jose's General Plan Land Use designation. The General Plan Land Use designation for the site would be amended from Combined Industrial/Commercial use to Public/Quasi-Public use and the Alternate Use Policy would be amended to include the proposed arena use as described in PART ONE, SECTION I., E. PROJECT ACTIONS: USES OF THE EIR.

POTENTIALLY SIGNIFICANT IMPACTS

1. Land Use Effects

The primary land use impacts of developing the proposed arena facility center around converting the project site from its existing mix of residential, commercial and industrial land uses to a higher intensity public land use. The arena facility would substantially alter the character of the site and the area to the south and west by eliminating the mixture of old uses on the site.

The arena structure will be the largest and tallest building in the area, having a height of approximately 65 feet above the existing grade and a footprint of

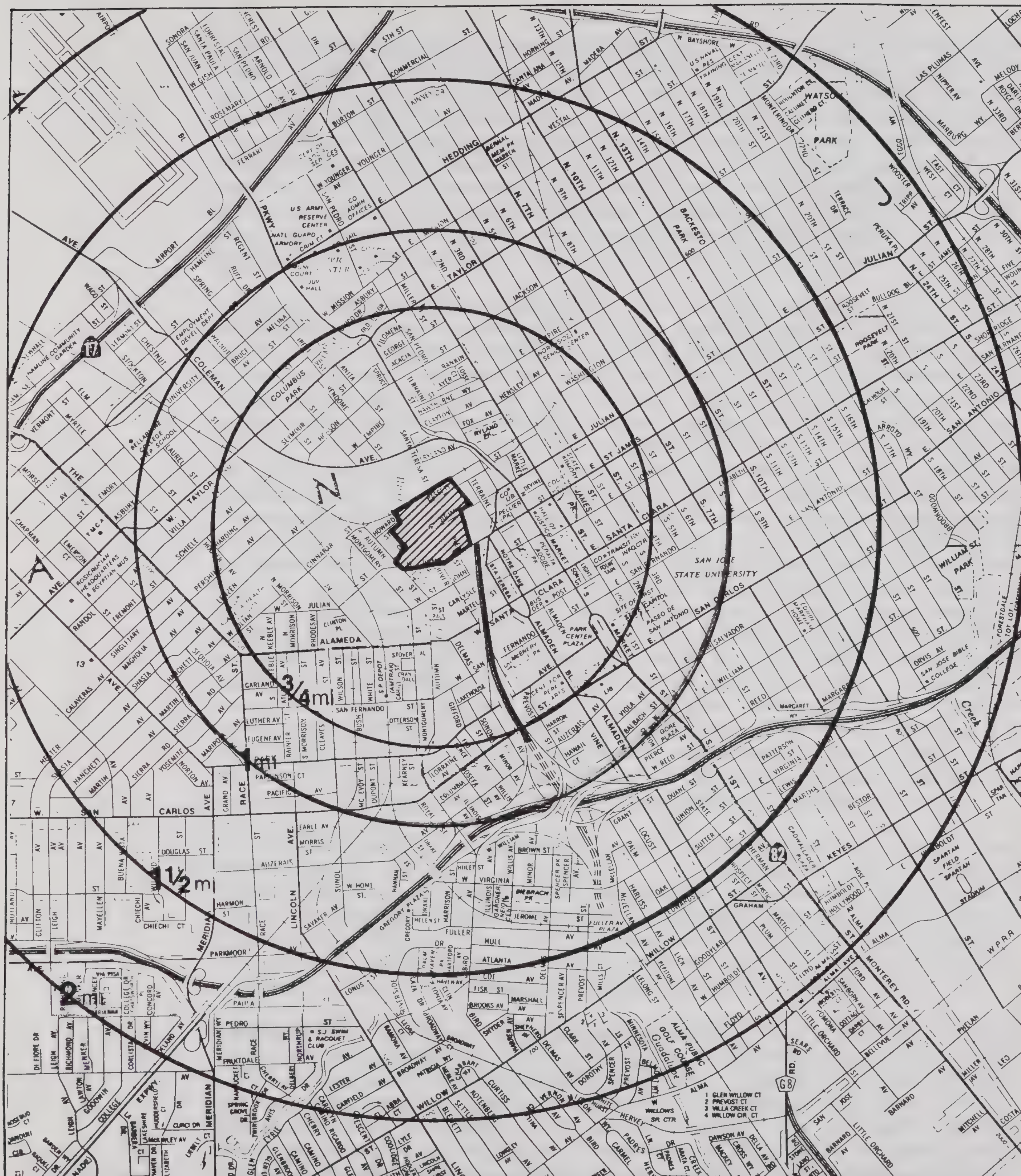
approximately 3.7 acres. The areana structure will replace a large existing FMC industrial building that stands approximately 40 feet tall. The area of the project site that would not be occupied by the arena structure would be used for surface and structured parking. The arena facility proposes no change to the Guadalupe River area, except for the construction of a bridge across the channel near the old alignment of Howard Street. The impacts associated with development of an arena facility at this site would mostly result from loss or relocation of existing businesses, demolition, site clearing and construction of the arena complex and from the introduction of relatively large numbers of people into the project area during its operation.

Construction and operation of the arena facility would result in several impacts that are either part of the land use change or result directly and/or indirectly from it. The land use changes resulting from construction and operation of the arena facility would involve several impacts. The significant land use impacts are composed of several components including the following: 1) changes in traffic circulation resulting both from closure of public roadways and the addition of arena-generated traffic; 2) displacement three residences and approximately ten businesses; 3) increased noise; 4) potential impacts to archaeologic and historic resources; 5) impacts to vegetation and wildlife habitat along Guadalupe River and at the proposed bridge location; and 6) impacts to adjacent and surrounding neighborhoods resulting from the introduction of large numbers of people into the project area. The neighborhood impacts are described below and other impacts are described subsequently within their respective section of this Environmental Impact Report.

Within the general project area there are several neighborhoods as shown in Figure B-3 which depict a circle with a one mile radius extending out from the site. The term "neighborhood," as used in this discussion is a relatively distinct and/or recognizable area with physical boundaries and residential characteristics. Some of the characteristics include the age and architectural style of homes, set back of the homes from the street, the width of the streets and width of landscaping between the curb and sidewalk, and the type of street trees such as sycamores, palms or elms. These residential characteristics and boundaries give a neighborhood a unique identity that is recognizable by the residents that live there. The discussion of neighborhood in this Environmental Impact Report does not constitute one neighborhood, but rather many which can be identified by a distinctive name and by distinctive boundaries. This Environmental Impact Report includes an analysis of all neighborhoods that could potentially be affected although it does not identify specific neighborhoods by name. The significance of impacts is based upon factors such as distance and physical constraints (i.e., freeways, major roadways, and development).

2. Neighborhood Impacts

Development of the proposed 20,000 seat arena would introduce a significant new use as well as a new structure into the project area. Concerns about the impacts of the proposed arena have been raised by residents in the vicinity as recorded during the public scoping meeting for the Environmental Impact Report (refer to PART FIVE, Section III., Community Input). The general arena vicinity includes older established neighborhoods and in some cases historic districts surround the area. Neighborhood concerns have been raised about potentially significant impacts that the arena facility may have on the character of these historic neighborhoods as well as on the quality of life. Although these



ALTERNATIVE SITE B

ONE MILE RADIUS

PROXIMITY OF RESIDENCES

N

0 2500 Feet

FIGURE B-3

impacts are difficult to measure and quantify in the context of an Environmental Impact Report, the arena facility would substantially alter the character of the site and immediate surrounding area. These impacts would be significant and unavoidable in the immediate area of the arena and decrease with distance from the arena site to a nonsignificant, but preceptible level of impact. In the context of this Environmental Impact Report, the impact on the "quality of life" of the arena area residents is measured in terms of physical impacts, such as traffic, air quality, services, etc. These impacts are evaluated and described within their respective section of this EIR. The general types of neighborhood impacts that surrounding residents would experience are characterized below.

Neighborhood impacts would result from the introduction of arena patrons into a neighborhood, thereby increasing vehicular and pedestrian traffic, and on-street parking. Both increased traffic and on-street parking have the greatest effects on narrow streets, examples of which are Sunol Street, Atlas Avenue, Fox Avenue, and Clayton Avenue. The impacts resulting from introducing arena patrons into a neighborhood include increased traffic, and vehicular noise, as well as noise from loud conversations and car stereos. During some events there may be tailgate parties that generate noise and activities which are also intrusive to neighborhoods. Another impact is littering, both on public roadways and on private property. Substantial pedestrian traffic may tend to damage private landscaping, particularly on corner lots where there is a tendency for pedestrians to take a "short cut" across a lawn or through shrubbery. Late evening departures from an arena event would result in neighborhood intrusions from noise and activity associated with pedestrian traffic, slamming of car doors and vehicular noises as vehicles drive out of the project area. Another neighborhood impact is the displacement of on-street parking for residents of a neighborhood by arena patrons. On-street parking by arena patrons may partially block some driveways making it difficult to pull into or out of driveways. The combined effects of on street parking, increased vehicular and pedestrian traffic, increased noise, and litter would have a cumulative impact upon neighborhoods that would significantly impact the quality of life. The net effect of these neighborhood impacts would be to adversely change the character of a neighborhood.

The level of impact on neighborhood character and quality of life is a subjective matter that is difficult to quantify. The component that constitutes neighborhood impacts such as noise, air quality, and vehicular and pedestrian traffic have, to some degree, been quantified in their respective sections of this Environmental Impact Report. The combined effect of the components of neighborhood impacts have a total net effect that can only be estimated and described in general and comparative terms as presented below.

Neighborhood impacts, and the change in character they can cause would be significant in the immediate area of the arena facility and less significant with increased distance from the project site (refer to Figure B-4). With increased distance from the arena vicinity, the intensity of neighborhood impacts and the frequency of their occurrence would decrease. In addition to distancefrom the arena, the intensity and frequency of occurrence of neighborhood impacts would generally be reduced by physical barriers or obstacles to pedestrian or vehicular traffic such as freeways, railroad tracks, major streets, and continuous industrial or commercial development. These barriers have been taken into account when assessing the frequency and intensity of impacts upon the character of neighborhoods and the quality of life. Based upon the intensity and frequency

Scale : 1" = 1000'

SEVERE NEIGHBORHOOD IMPACTS

MODERATE NEIGHBORHOOD IMPACTS

PERCEPTIBLE NEIGHBORHOOD IMPACTS

IMPACTED NEIGHBORHOOD AREAS	ARENA SITE - B	FIGURE B-4

of occurrence, the neighborhood impacts have been divided into three categories which are mapped on Figure A-4 and described below:

1) **Severe Neighborhood Impacts** - result from frequent and significant increases in traffic, on-street parking, littering, and noise from vehicle, car stereos, etc. causing a significant change in the character of a neighborhood.

2) **Moderate Neighborhood Impacts** - result from increases in traffic, on street parking, littering, and noise from vehicle, car stereos, etc., but occurring less frequently and with less intensity than in the "Severe Neighborhood Impact" category depending upon the size and time of the events. Moderate neighborhood impacts have the potential to cause a significant change in the character of a neighborhood.

3) **Perceptible Neighborhood Impacts** - result from increased drive through traffic, minimal or infrequent on-street parking, and noise increases. The net effect of these impacts would be perceptible to neighborhood residents but does not significantly change the overall character of the neighborhood.

The most severely impacted neighborhoods are located along North Autumn Street and River Street as illustrated on Figure B-4. Other significantly impacted neighborhoods are on the easterly side of State Route 87 in the area of Fox Avenue, Clayton Avenue, East Julian Street, North Third Street, and Hensley Avenue as well as south of the site on the south side of West Santa Clara Street in the area of Delmas Avenue and West San Fernando Street. Other neighborhoods that would be moderately impacted are located to the west of the site on both the north and south sides of The Alameda. These streets include Sunol, Wilson, Rhodes, Morrison, Atlas, West Julian, Cinnabar, Lensen, Pershing, Harding, Hoover, and Schiele. Neighborhoods located to the west of Race Street and to the southwest of The Alameda would experience perceptible neighborhood impacts including increased arena patron traffic and infrequent or occasional on-street parking. Some neighborhoods to the northeast of the site, on both sides of North First Street would be perceptibly impacted.

The proposed arena facility is not anticipated to have substantial effects upon the surrounding commercial and industrial businesses, which usually operate during normal business hours (i.e., 8:00 AM to 5:00 PM). The majority of the businesses in the project are not open in the evening and nighttime hours, when there is the highest potential for conflicts between surrounding land uses and the arena patrons.

3. Impacts of General Plan Amendments

The project proposed amendments to San Jose's General Plan that would allow development of the proposed arena facility as descrined in PART ONE,SECTION I., E. PROJECT ACTIONS: USES OF THE EIR. The ultimate land use impacts that would result from the proposed General Plan amendments are those impacts discussed in this environmental document. These impacts include:

- Increased traffic in the project area;
- Construction of structures not in scale with surrounding land uses; and
- Displacement of approximately two residential dwellings and between 20 and 30 businesses;

- Displacement of potentially historically-significant structures;
- Potential impacts to archaeological resources; and
- Increased noise levels in surrounding neighborhoods.

The neighborhood impacts (such as pedestrian traffic, on-street parking, and noise outside of the immediate arena vicinity) are the most significant impact that would result from the proposed General Plan amendments for development of the arena facility. Most of the other impacts would result from implementation of the existing General Plan, although these impacts would occur to a lesser extent.

MITIGATION MEASURES

The following mitigation measures could reasonably be expected to reduce adverse land use impacts associated with the implementation of the proposed San Jose Arena Facility.

- Neighborhood impacts from the intrusion of arena patron traffic, pedestrians, noise, and on-street parking could be reduced by a temporary barricade system during events at the arena that would exclude arena traffic and by a parking sticker program for residents. Neighborhood impacts can also be reduced by an effective signing program that directs arena patrons unfamiliar with the area to parking garages and parking lots away from the neighborhoods. Implementation of these mitigation measures would reduce the neighborhood impacts to a non-significant level in those areas designated on Figure B-4 as "Moderate Neighborhood Impacts." Even with the implementation of these mitigation measures there would be significant and unavoidable neighborhood impacts in the areas designated on Figure B-4 as "Severe Neighborhood Impacts." **(Included in Project)**

- Increased traffic in neighborhoods generated by arena patrons, could in some cases, be reduced by a traffic diverter system that restricts through traffic. This mitigation measure creates secondary impacts since diverted traffic usually impacts other areas and would not reduce a significant impact to a nonsignificant level. Traffic diverter programs would be subject to General Plan conformance and separate environmental review. **(Not Presently Included in Project)**

- Extensive landscaping buffers and berming around the perimeter of the arena site and arena building and through the parking lots could reduce the apparant land use intensity (i.e., height and bulk) of the proposed arena structure on adjacent and surrounding land uses such as those along Santa Clara Street. Careful siting, including setbacks and orientation, and architectural treatment of the arena facility would reduce the visual impacts of the arena structure. This mitigation would not reduce the impact of the height and mass of the building and intensity of the land use to an non-significant level. **(Not Presently Included in Project)**

- Mitigation measures presented in the Historic Resources and Archaeologic Resources sections of this report for historically-significant structures can be implemented (refer to PART TWO, SECTION I., L. Archaeologic Resources and M. Historic Resources for specific mitigations). These mitigation measures could, in some cases reduce the impacts to historical and archaeological resources to an non-significant level, but in other cases there may be significant unavoidable impacts, particularly to archaeological resources. **(Included in Project)**

- The Redevelopment Agency of the City of San Jose would compensate the owners of residences and businesses that are displaced or have their property acquired by paying fair market values and appropriate relocation assistance payments in accordance with the California Government Code. These mitigation measures would reduce some of the impacts to displaced residences to a non-significant level, but where it is not feasible to relocate a business, there would be a significant unavoidable impact (refer to PART THREE, SECTION I., N. RESIDENTIAL AND BUSINESS RELOCATION). **(Included in Project)**

B. TRAFFIC AND CIRCULATION

The proposed arena facility would impact the existing roadway and circulation system by adding additional vehicle trips to the project site and area. These impacts would be on regional, local and site circulation. This section discusses the existing setting, method of analysis, environmental impacts (including culumative) and mitigation measures.

EXISTING SETTING

This analysis considers the existing circulation system for the City of San Jose, and how that system would be affected by the implementation of the proposed San Jose Arena facility project. For a complete traffic analysis of the site under consideration, five different time scenarios were considered for each of two different seating capacities. They included:

- Weekday PM Peak Analysis (between 4:00 and 6:00 PM) with an arena event starting time of 6:00 PM (listed as "Wkdy PM" in tables).

- Weekday Evening Peak Hour Analysis with an arena starting time of 7:30 PM (listed as "Wkdy Eve" in tables).

- Weekday Late Evening Peak Hour Analysis with an arena event ending time of 10:30 PM (listed as "Wkdy Late Eve" in tables).

- Friday Evening Peak Hour Analysis with an arena event starting time of 7:30 PM (listed as "Fri Eve" in tables).

- Saturday Evening Peak Hour Analysis with an arena event starting time of 7:30 PM (listed as "Sat Eve" in tables).

The two different seating capacities considered for each of these time scenarios was 17,500-seats and 20,000-seats. The different scenarios were evaluated for existing, Year 1991 and Year 2000 traffic conditions.

For matinee events between 1:30 and 4:30 PM, a traffic analysis was not conducted because the attendance at these events is projected to be only 11,000 persons. This attndance level was not considered as being as critical as the 17,500 or 20,000 persons attendance level for the weekday PM peak hour.

The City of San Jose selected twenty critical intersections around the proposed project site for traffic impact analysis. These locations are shown in Figure B-5. Descriptions

TRAFFIC ANALYSIS INTERSECTION LOCATIONS

FIGURE B-5

of the tasks performed and analyses conducted for evaluating existing conditions are provided in the following sections.

This analysis provides for 24 different scenarios that were analyzed for potential traffic impacts from the arena development.

1. Data Collection - Method of Analysis

Data collected for similar arena facilities in other areas indicated that about 93 percent of the arena patrons arrive during the hour before the start of an event. Approximately four-percent would arrive during the PM peak hour between 5:00 and 6:00 PM and the remaining three-percent would arrive at other times.

The departure pattern varies more so by the type of event. For example, studies have shown that for basketball events, an estimated 48-percent of the patrons leave before the end of the event, while for entertainment events, only seven-percent were found to have departed the surveyed site prior to the conclusion of the event.

Approximately two or three times a year, arena events may begin as early as 6:00 PM. These would be events which wuld be broadcasted to audiences nation-wide (Cunningham, 1987). For these events, the peak hour of arena patron arrival would occur during the PM peak period. However, the starting time for most arena events is expected to be 7:30 PM, with the peak hour for arena patron arrival occurring between 6:30 and 7:30 PM. Likewise, an event with an ending time around 10:30 PM would result in a peak hour for arena patron departure of around 10:30 to 11:30 PM.

The traffic counts for the PM Peak Hour were obtained from the City of San Jose files. For intersection locations where counts were taken during the previous years, an annual growth factor of 3.6 percent was applied to reflect existing (1987) traffic conditions (City of San Jose, 1987).

The peak hour counts for the remaining time periods were obtained from manual count movements conducted by Barton-Aschman Associates, Incorporated. Traffic counts were taken during the evening periods between 6:30 and 8:30 PM and the late evening period between 10:00 PM and 12:00 midnight. The traffic counts conducted on Friday evenings between 6:30 and 8:30 PM reflect the increased activity level of the general area. The Center for Performing Arts, Montgomery Theater and Civic Auditorium are all located in the vicinity of the proposed project site. On the Friday evenings when the counts were conducted, these facilities held events that attracted peak season crowds. Little or no traffic was anticipated for the evening hours for the Convention Center. This is a result of the fact that the majority of the events that are held at the Convention Center are held during the daytime hours. Very few of the events at this center will be held in the evening hours (Lu, 1987).

2. Intersection Operation

The traffic conditions at an intersection can be described in the terms of Level of Service (LOS). Level of Service is a qualitative description of an intersection's opertation, based on the amount of traffic, conflicting traffic movements, delays

and congestion. Levels of Service range from A, representing free-flow conditions, to F, representing jammed conditions. Generally, the Level of Service is derived from the ratio of traffic volumes and available capacity, shown as V/C ratios. The various levels of service, their descriptions and range of V/C ratios are shown in Table B-1.

A signalized intersection's level of service can be calculated with a number of different methods. The City of San Jose has adopted its own method which is based on critical traffic movements. In this method, the volume of cars completing the turning movements that dictate the operation of the intersection are added together. The sum is divided by the capacity of the mavements, and a volume-to-capacity ratio is obtained. The volume-to-capacity ratio is correlated to a level of service described in Table B-1.

An intersection operating under stop control can be evaluated using the methodology described in the Highway Capacity Manual, Special Report No. 209, published by the Transportation Research Board. Unlike the level of service definitions given in Table B-1 for signalized intersections, the level of service criteria for this methodology are stated in very general terms, and are related to general delay and reserve capacity ranges.

Existing Intersection Level of Service

The results of level of service calculation performed for the twenty intersections for the different time periods are presented in Table B-2. In general, the City of San Jose considers any intersection operating below Level of Service D as unacceptable under existing conditions and therefore is considered significant in terms of CEQA. The results of the intersection level of service analyses indicated the following number of intersections with unacceptable operations associated with each of the scenarios.

- Weekday PM peak hour: 5 intersections
- Weekday Evening peak hour: None
- Weekday Late Evening peak hour: None
- Friday Evenig peak hour: 1 intersection
- Saturday Evening peak hour: None

Therefore, under existing conditions, five intersections would be considered to be significantly impacted during the Weekday PM peak hour.

3. Hourly Traffic Variation

Traffic volumes on the roadway system vary over the 24 hour period and over the seven days of the week. During the weekday AM and PM peak periods, there are more vehicles on the roadways than during the mid-day period. At night, traffic volumes on most of the roadways are relatively low. On the weekends, the average daily traffic (ADT) is lower than for a typical weekday.

Different types of roadway facilities have different hourly variations throughout the day. For example, major arterials carrying heavy commuter traffic have a different pattern than roadways serving retail areas.

In order to determine the travel pattern for the area in the vicinity of the project site, 24 hour counts were conducted at the following locations (see Figure B-6).

TABLE B-1

INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Interpretation	V/C Ratio
A, B	Uncongested operations; all queues clear in a single signal cycle.	Less Than .7
C	Light congestion; occasional backups on critical approaches.	.700 - .799
D	Significant congestion on critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	.800 - .899
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es).	.900 - .999
F	Total breakdown, stop-and-go operation.	1.0 And Greater

TABLE B-2

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	E	.928	A	.293	A	.136	A	.563	N.A.	
Stockton & Taylor	A	.462	A	.116	A	.047	A	.222	N.A.	
Coleman & Taylor	D	.821	A	.137	A	.079	A	.279	N.A.	
SR 87 & Taylor	C	.767	A	.337	A	.126	A	.474	N.A.	
SR 87 Off-Ramp (SB) & Coleman	F	1.072	A	.457	A	.176	A	.550	N.A.	
San Pedro & Julian	E/d/		C		A		E		A	
Market & Julian	E	.960	A	.325	A	.194	A	.436	A	.299
Alameda & Julian/Hanchett	B	.688	A	.210	A	.111	A	.362	A	.220
Stockton & Julian	D	.813	A	.225	A	.138	A	.369	A	.153
Montgomery & Julian	A	.501	A	.122	A	.047	A	.243		
SR 87 On-Ramp (SB) & Julian	N.A./c/		N.A.		N.A.		N.A.		N.A.	
SR 87 On-Ramp (NB)/Notre Dame & Julian	D	.811	A	.372	A	.084	A	.274	A	.138
Alameda/Race & Martin	C	.718	A	.242	A	.126	A	.360	A	.201
Stockton & Alameda	F/d/		A		A		A		A	
Cahill & Alameda	B	.645	A	.235	A	.115	A	.305	N.A.	
Montgomery & Alameda	A	.564	A	.186	A	.079	A	.279	A	.160
Autumn & Santa Clara	A	.353	A	.131	A	.080	A	.202	A	.112
SR 87 Off-Ramp (NB) & Santa Clara	N.A.		N.A.		N.A.		N.A.		N.A.	
Santa Teresa & Santa Clara	D	.845	A	.329	A	.171	A	.408	A	.230
Notre Dame & Santa Clara	B	.632	A	.246	A	.141	A	.400	A	.230

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

MACHINE COUNT LOCATIONS

FIGURE B-6

- Almaden Boulevard south of Santa Clara Street
- Santa Clara Street east of Autumn Street
- The Alameda south of Shasta Avenue
- Julian Street east of the Southern Pacific Railroad overpass
- Shasta Avenue west of the Alameda (Friday and Saturday counts)
- Hanchett Avenue west of the Alameda (Friday and Saturday counts)

The machine counts were conducted in May, 1987. The highest weekday and Saturday daily traffic volumes are given in Table B-3. The hourly totals for these counts were plotted in graphical form to determine the hourly travel pattern, the traffic volumes during peak travel times and the off-peak travel characteristics. The hourly variations for the six locations are shown in Figures A-7 through A-23. The count data indicates that for all locations measured, the weekday with the highest traffic volumes is Friday. Also, the amount of traffic an the roadways is higher on Fridays than on Saturdays. During the weekdays, the AM peak hour traffic volumes equal or exceed the PM peak hour volumes. Generally, the traffic volumes drop sharply after 6:00 PM.

These graphs clearly reflect the character of the roadway and the function it performs. For example, arterial roadways carry a significant amount of commuter traffic on weekdays during the AM and PM peak periods. These commute patterns are reflected in the high peaks on the graphs. The same roadway on Saturday and Sunday have a low, steady traffic flow all day with no peaks.

Similarly, due to the local character, residential roadways generally carry lower volumes and less commuter trips. The graphs in these cases are flat and do not show high peaks.

4. Transit Services

CalTrain Service

The CalTrain commuter rail system, currently operating between San Francisco and San Jose, terminates at the Cahill Station (located just south of Santa Clara Street). On weekdays, 27 trains operated from San Francisco to San Jose, and 26 trains operate from San Jose to San Francisco. The weekday service operates between 5:00 AM and 10:00 PM for both the northbound and southbound directions. On Saturdays, twelve trains operate in each direction; on Sundays, nine trains provide surface. The majority of the trains stop at all the existing 27 stations along the peninsula to pick-up and discharge passengers.

As a result of its close proximity to the project site, the Cahill Station offers some opportunities to provide service for the arena patrons to and from the peninsula cities. Also, it is possible to provide a special train service similar to the one currently provided for events at Stanford Stadium. Without major changes to the existing services, it was estimated that two-percent of the arena patrons from the peninsula market area would use CalTrain services.

Studies are currently underway to investigate extending the Bay Area Rapid Transit (BART) service to the South Bay area. Although these studies are in the preliminary stages, it is likely that BART will be extended to San Jose. The Cahill Station is a strong candidate for a BART station.

TABLE B-3

SUMMARY OF 24-HOUR MACHINE COUNTS

Count Location			24-Hour Traffic Volumes: Highest Weekday/a/	24-Hour Traffic Volumes: Saturday
1.	Almaden Boulevard south of Santa Clara	NB/b/	12,055	5,899
		SB/c/	9,966	4,460
		Total	22,021	10,359
2.	Santa Clara Street east of Autumn	EB	11,570	6,948
		WB	9,854	6,348
		Total	21,424	13,296
3.	The Alameda south of Shasta	NB	16,082	9,133
		SB	14,412	8,625
		Total	30,494	17,758
4.	Julian Street east of Southern Pacific overpass	EB/d/	5,663	2,297
		WB/e/	6,683	2,863
		Total	12,346	5,160
5.	Shasta Avenue west of The Alameda	EB	--	--
		WB	--	--
		Total	694	499
6.	Hanchett Avenue west of The Alameda	EB	--	--
		WB	--	--
		Total	2,556	1,241
7.	Stockton Avenue south of Lenzen/g/	NB	6,755	N.A./f/
		SB	6,718	
		Total	13,473	

/a/ At all count locations, highest weekday volumes occurred on Fridays

/b/ NB = Northbound

/c/ SB = Southbound

/d/ EB = Eastbound

/e/ WB = Westbound

/f/ N.A. = Not Available

/g/ Earlier count taken on January 29, 1987.

Light Rail Transit Service

The Guadalupe Light Rail Transit Service (LRT) line is currently under construction. This LRT line will connect downtown San Jose with the City of Santa Clara (to the north) and South San Jose (to the south). Several LRT stations are proposed in the downtown transit mall area. The project site would be located nearest to the station proposed at the intersection of First and St. James Streets. In terms of walking time, the project site would be approximately ten minutes away from the St. James Street Station, and approximately 20 minutes away from another LRT station proposed at the intersection of First and Santa Clara Streets. For this analysis, it was assumed that approximately five percent of the arena patrons would use the LRT system.

5. Roadway System Improvements

Major transportation system improvements are planned for the area serving the project site. The State Route 87/Guadalupe Parkway construction through downtown San Jose is the major roadway improvement project currently underway, and is anticipated for completion in 1988. As part of this roadway project, State Route 87 would be extended, as a freeway, between Interstate 280 and West Taylor Street. According to the design plans, a northbound on-ramp and a southbound off-ramp will be constructed at Park Avenue. A northbound off-ramp would be constructed at West Santa Clara Street. A complete interchange would be constructed between State Route 87 and Julian Street. Also, a northbound on-ramp and a southbound off-ramp have been constructed at Coleman Avenue. Within the context of the State Route 87 construction project, a new roadway connection would be provided to connect Julian Street with Santa Teresa Street (under existing conditions, the roadway is referred to as North Almaden Boulevard) under State Route 87. Once the freeway and its interchanges are completed, Delmas Avenue would be converted to one-way southbound between Santa Clara Street and Auzerais Avenue, and would connect with a southbound on-ramp to State Route 87.

The construction of State Route 87 will not only add significant roadway capacity for regional connections to the downtown area, but it would also enable the construction of 320 parking spaces underneath the structure south of Santa Clara Street. This parking resource would be available for arean patrons, due to its close proximity to the project site.

The recently-completed Guadalupe River Park Master Plan recommends a new roadway facility, called Riverfront Road, to be located west of and parallel to the Guadalupe River (between Coleman Avenue and Santa Clara Street). This is proposed to be a four-lane roadway with signals at Coleman Avenue, Julian Street and Santa Clara Street. This roadway has been adopted in the City of San Jose's General Plan. However, at this time, it has not been funded; accordingly, its time of completion is not known. With the completion of Riverfront Road, the existing Montgomery/Autumn Streets onw-way couplet will be eliminated and will be replaced by Riverfront Road.

POTENTIALLY SIGNIFICANT IMPACTS

The City's General Plan Transportation policy uses levels of service criteria to define conformance with the Plan. Therefore, for the purposes of General Plan review, the discussion of impacts on the level of service would also apply to the impacts on the General Plan Transportation policy.

1. <u>1991 Base Conditions</u>

It is anticipated that 1991 is the year for the opening of the proposed arena facility. Accordingly, the traffic analysis was based upon Year-1991 traffic conditions.

To complete the analysis for the five scenarios studied, existing traffic volumes at the 21 critical intersections were factored by an annual growth rate of 1.2-percent to Year-1991. This growth rate reflects the annual increase in the regional background traffic anticipated between now and 1991. Also, the anticipated traffic volumes from future projects in the site vicinity (which have been approved) were added to the factored traffic volumes. This provided Year 1991 base traffic volumes.

Year 1991 (Base Conditions) Level of Service

The results of the level of service calculations performed for Year 1991 base traffic conditions are summarized in Table B-4. These traffic volumes do not include any project traffic. The purpose of analyzing Year 1991 base conditions is to determine the operating level of the studied intersections prior to the addition of the arena-generated traffic for Year 1991. The number of intersections which would operate under unacceptable conditions for each of the time scenarios analyzed are provided below.

- Weekday PM peak hour: 6 intersection
- Weekday Evening peak hour: None
- Weekday Late Evening peak hour: None
- Friday Evening peak hour: 1 intersection
- Saturday Evening peak hour: None

The results indicate that two of the six intersections that would operate under unacceptable conditions are not signalized. The other four intersections would operate under LOS E or F conditions during the PM peak hour. The remaining intersections would all be operating at LOS D or better for all of the scenarios included in this analysis. In fact, with the exception of one intersection (Julian and San Pedro Streets), all other intersection locations would be operating at LOS A or B during the evening peak hours. This indicates that ample spare capacity will be available to serve arena project traffic during those times.

Therefore, six intersections could be considered to be significantly impacted for Year-1991 (base conditions) during the Weekday PM peak hour.

2. <u>Year-1991 Base Plus Project Conditions</u>

In this study, the analyses were conducted for two different seating capacities: 17,500 seats and 20,000 seats. For both cases, maximum attendance was assumed.

TABLE B-4

YEAR 1991 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	E	.992	A	.320	A	.149	B	.600	N.A. /c/	
Stockton & Taylor	A	.517	A	.122	A	.060	A	.287	N.A.	
Coleman & Taylor	D	.842	A	.139	A	.098	A	.294	N.A.	
S.R. 87 & Taylor	D	.813	A	.361	A	.137	A	.484	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	A	.779	A	.578	A	.156	A	.514	N.A.	
San Pedro & Julian	E/d/		C		A		E		A	
Market & Julian	E	.942	A	.430	A	.196	A	.449	A	.314
Alameda & Julian/Hanchett	D	.838	A	.310	A	.154	A	.459	A	.283
Stockton & Julian	F	1.118	A	.285	A	.200	A	.549	A	.253
Montgomery & Julian	C	.716	A	.159	A	.078	A	.375		
S.R. 87 On-Ramp (SB) & Julian	A	.344	A	.217	A	.088	A	.266	A	.139
S.R. 87 On-Ramp (NB)/Notre Dame & Julian	C	.707	A	.352	A	.076	A	.262	A	.145
Alameda/Race & Martin	D	.840	A	.290	A	.136	A	.425	A	.237
Stockton & Alameda	F/d/		A		A		A		N.A.	
Cahill & Alameda	C	.709	A	.269	A	.129	A	.344	N.A.	
Montgomery & Alameda	A	.583	A	.261	A	.140	A	.346	A	.248
Autumn & Santa Clara	A	.376	A	.154	A	.087	A	.222	A	.126
S.R. 87 Off-Ramp (NB) & Santa Clara	A	.431	A	.206	A	.095	A	.267	A	.139
Santa Teresa (N. Almaden) & Santa Clara	E	.976	A	.337	A	.212	A	.515	A	.288
Notre Dame & Santa Clara	C	.733	A	.272	A	.165	A	.461	A	.265

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

Trip Generation

The proposed arena trip generation estimates for each of the two seating capacities are given in Table B-5. These numbers are based on the following assumptions.

- Estimated Transit Use: one percent by buses, two percent of peninsula residents by Caltrain and five percent of South San Jose residents by the Guadalupe LRT Line.
- An average of 3.0 persons per vehicle
- The arena events will start at 6:00 PM and/or 7:30 PM
- For a 6:00 PM start time, an estimated 93 percent of the arena patrons would arrive between 5:00 and 6:00 PM
- For a 7:30 PM start time, approximately four percent of the patrons would arrive during the PM peak hour and an estimated 93 percent would arrive between 6:30 and 7:30 PM
- An estimated 93 percent of the patrons would leave the arena during the hour immediately after the event

The traffic analysis is based upon the assumption that 92 percent of the arena patrons would arrive by car and would park at the available parking facilities within an acceptable walking distance (1,500 to 2,000 feet) from the project site.

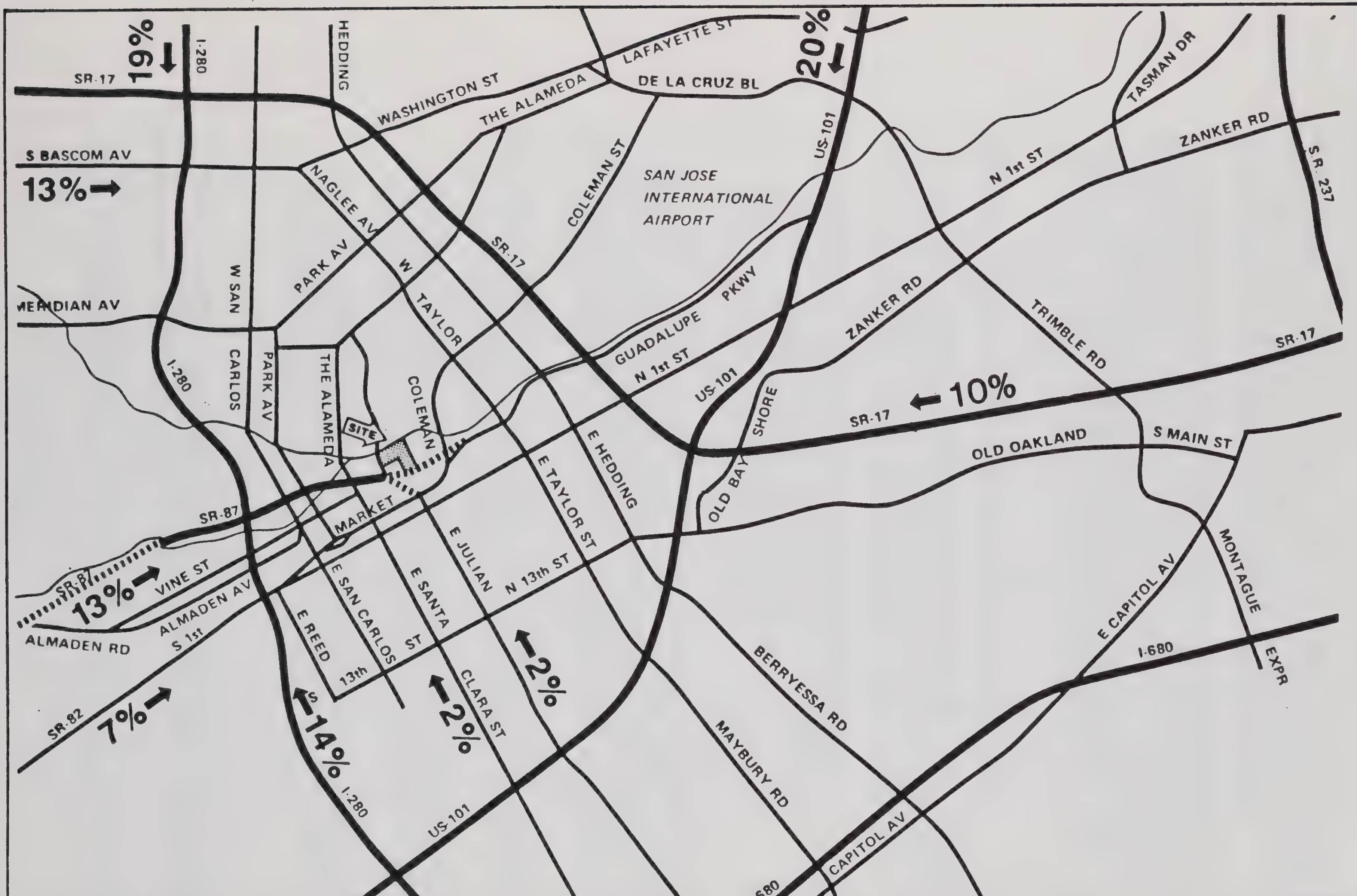
TABLE B-5

TRIP GENERATION FOR ARENA

Site	Average Peak Attendance	Transit (Person Trips)	Automobile (Vehicle Trips)
B	17,500	525	5,660
B	20,000	600	6,470

Automobile Trip Distribution and Assignment

Year-1995 projected population statistics for the South Bay area were used to determine the market area for the proposed project. Economic Research Associates provided the projected population for each geographic segment of the market area. The population information was extracted from the projections produced by the Association of Bay Area Governments (ABAG). The automobile trip distribution was based on the percentages shown on Figure B-7, which gives the percentage of the total arena trips estimated to use each of the regional facilities. The majoreity of the arena patrons is expected to utilize regional freeway facilities for gaining access to the project area. However, this study assumed that some traffic would use the local facilities. An estimated one-percent of the project traffic was assigned on Hanchett Avenue, two percent on



DIRECTIONS OF APPROACH FOR PROJECT SITE

FIGURE B-7

Naglee Avenue, one percent on Race Street, two percent on Julian Street/St. James Street, two percent on Santa Clara Street, five percent on The Alameda, seven percent on Coleman Avenue, five percent on Market Street, one percent on Almaden Boulevard and one percent on Autumn/Montgomery Streets.

The estimated automobile trips were distributed and assigned to the regional and local roadways approaching the project site. The trip assignments on the roadway system in the vicinity of the site were based upon the parking facility locations and their walking distances to the project site. The details of this procedure our outlined in Section C, Parking Analysis, of this report. The resulting PM peak, evening peak and late evening peak hour traffic assignments were used to determine the traffic impact of the arena project.

2. Intersection Operation-- Year 1991 (With Project) Level of Service

The intersection level of service calculation results for both the seating capacities (i.e., 17,500 seats and 20,000 seats) with maximum attendance, are presented in Tables B-6 and B-7. The number of intersections that would operate under unacceptable conditions is the same for both attendance levels. They are:

- Weekday PM peak hour: 12 intersections (17,500 attendance)
- Weekday PM peak hour: 13 intersections (20,000 attendance)
- Weekday Evening peak hour: 1 intersection
- Weekday Late Evening peak hour: 2 intersections
- Friday Evening peak hour: 2 intersections
- Saturday Evening peak hour: 1 intersection

However, when these results are compared with the results from Year-1991 base conditions (without the arena traffic), it is observed that six of the twelve intersections would already operate under unacceptable conditions during the PM peak hour and one intersection during the evening peak hours. The remaining intersections would deteriorate to LOS E or F conditions with the addition of the arena traffic.

According to the City of San Jose policy, the traffic impact of a projectr at an intersection is considered significant and therefore will require mitigation(s) if either one of the two following conditions occur:

- The level of service of an intersection deteriorates from an acceptable level (LOS A, B, C or D) to an unacceptable level (LOS E or F) after the addition of the project traffic; or

- For an intersection operating at an unacceptable level of service prior to the addition of the project traffic, the proposed project increases the critical base condition traffic volumes by 1-percent or more.

PM Peak Hour

Among the five time scenarios considered, the PM peak hour is the most critical. This condition would occur at most three to five times a year, when the arena events are broadcasted to a nation-wide audience.

In this scenario, 93-percent of the arena traffic is projected to arrive at the project site during the PM commute hour. For this reason, 12 intersections would

TABLE B-6

1991 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	F	1.068	A	.435	A	.231	B	.605	N.A. /c/	
Stockton & Taylor	A	.530	A	1.122	A	.071	A	.287	N.A.	
Coleman & Taylor	E	.926	A	.187	A	.242	A	.390	N.A.	
S.R. 87 & Taylor	F	1.097	B	.689	A	.137	C	.795	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	F	1.124	C	.706	A	.242	B	.639	N.A.	
San Pedro & Julian	F/d/		F		F		F		F	
Market & Julian	F	1.258	A	.522	A	.265	A	.541	A	.396
Alameda & Julian/Hanchett	E	.948	A	.450	A	.235	B	.607	A	.418
Stockton & Julian	F	1.274	A	.442	A	.429	C	.706	A	.411
Montgomery & Julian	D	.801	A	.264	A	.184	A	.475	N.A.	
S.R. 87 Off-Ramp (SB) & Julian	D	.898	B	.664	A	.421	D	.712	B	.670
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	F	1.028	B	.623	C	.753	A	.534	A	.457
Alameda/Race & Martin	D	.862	A	.373	A	.164	A	.448	A	.341
Stockton & Alameda	F/d/		A		A		A			
Cahill & Alameda	C	.770	A	.335	A	.230	A	.409	N.A.	
Montgomery & Alameda	B	.644	A	.327	A	.222	A	.410	A	.315
Autumn & Santa Clara	A	.442	A	.220	A	.192	A	.288	A	.192
S.R. 87 Off-Ramp (NB) & Santa Clara	C	.787	A	.546	A	.348	B	.608	A	.460
Santa Teresa (N. Almaden) & Santa Clara	F	1.454	D	.810	A	.387	E	.990	C	.761
Notre Dame & Santa Clara	F	1.097	B	.654	A	.443	D	.845	B	.646
Autumn & Julian	D	.809	B	.607	N.A.		N.A.		N.A.	

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed because this is not considered to be the critical peak.
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

TABLE B-7

1991 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	F	1.076	A	.452	A	.244	B	.605	N.A. /c/	
Stockton & Taylor	A	.542	A	.122	A	.071	A	.287	N.A.	
Coleman & Taylor	E	.930	A	.203	A	.264	A	.397	N.A.	
S.R. 87 & Taylor	F	1.132	C	.733	A	.137	D	.836	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	F	1.158	C	.712	A	.248	B	.646	N.A.	
San Pedro & Julian	F/d/		F		F		F		F	
Market & Julian	F	1.279	A	.531	A	.270	A	.547	A	.401
Alameda & Julian/Hanchett	E	.964	A	.461	A	.251	B	.621	A	.431
Stockton & Julian	F	1.288	A	.456	A	.462	C	.720	A	.424
Montgomery & Julian	D	.807	A	.273	A	.192	A	.484	N.A.	
S.R. 87 Off-Ramp (SB) & Julian	E	.981	C	.788	A	.466	D	.833	C	.724
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	F	1.128	C	.710	C	.779	B	.637	A	.554
Alameda/Race & Martin	D	.863	A	.393	A	.168	A	.495	A	.361
Stockton & Alameda	F/d/		A		A		A			
Cahill & Alameda	C	.783	A	.351	A	.267	A	.425	N.A.	
Montgomery & Alameda	D	.885	B	.635	A	.257	C	.734	B	.617
Autumn & Santa Clara	A	.457	A	.235	A	.221	A	.303	A	.206
S.R. 87 Off-Ramp (NB) & Santa Clara	D	.839	A	.596	A	.371	B	.659	A	.509
Santa Teresa (N. Almaden) & Santa Clara	F	1.471	D	.827	A	.478	F	1.007	C	.778
Notre Dame & Santa Clara	F	1.098	B	.656	A	.562	D	.849	B	.648
Autumn & Julian	E	.922	B	.691	N.A.		N.A.		N.A.	

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed
/d/ Worst Approach Level of Service For Stop-Controlled Intersections

operate at LOS E or F for the condition with the maximum attendance of 17,500 persons, and 13 intersections for the condition with maximum attendance of 20,000 persons. Based on the City of San Jose's Level of Service policy, all of these intersections would be significantly impacted by the proposed arena facility and would require mitigation measures, if possible.

Evening Peak Hour

In general, the traffic conditions in the site vicinity are worse on a Friday evening than on a typical weekday or Saturday evening. The intersection of San Pedro and Julian Streets, which would operate under unacceptable conditions during the weekday and Saturday evening peak hours, is projected to deteriorate even more on Friday evenings. This is because of the increased activity level of the general area during weekend evenings. The intersection of Santa Teresa and Santa Clara Streets would operate under unacceptable conditions (LOS F with V/C=1.007) on Friday evenings. The Center for Performing Arts, Montgomery Theater and Civic Auditorium are all located in the vicinity of that intersection.

The project would have a significant impact on intersection LOS during the Evening peak hour.

Late Evening Peak Hour

Due to the relatively low base traffic volumes on the roadways during this time period, the operations of almost all of the intersections included in this traffic analysis are well above the minimum acceptable standards, even with 93 percent of the arena traffic leaving the site within the hour after the end of an event. The only exceptions would occur at the intersections of Montgomery and Julian Streets and Julian and San Pedro Streets. The introduction of arena traffic to the project area during this time period would represent trips that would not otherwise occur under existing development patterns. The introduction of arena traffic during this time period could add traffic during the late evening hours which would not otherwise occur under existing development.

The proposed project would have a less than significant impact on the Late Evening peak hour intersection LOS.

3. Year-2000 Base Conditions

The traffic impact analysis for the Year-2000 was conducted to determine the long-term impact of the proposed arena project. An analysis of this type requires a reliable, long-range forecast of background traffic.

The City of San Jose has developed and calibrated a travel-demand model for the Year 2000. This model was used for forecasting the PM peak hour traffic volumes for the City's roadways. This model is known as the HORIZON 2000 TRANPLAN model.

This model is based upon the TRANPLAN computer software package, which is commonly used for traffic simulation studies for large urban areas such as the City of San Jose. The City's model is a sophisticated, analytical tool with more than 600 traffic analysis zones and thousands of network links. The model generates, distributes and assigns nearly 500,000 all-purpose trips to the roadway system network for the PM peak hour. During the assignment process, this model

accounts for traffic congestion by assigning trips so as to minimize travel time on the roadway network, but also takes into consideration the available roadway system capacity. Mapjor planning assumptions which are built into the model for the Year-2000 include the following:

- Validation of model using Year-1980 census data
- Year 2000 data generally matched the ABAG 2005 projections
- Full build-out of the Julian-Stockton Redevelopment Area with 8,000 jobs
- Full build-out of North San Jose by Year-2000
- Completion of the following transportation system projects:
  - Construction of State Route 87 as a freeway from South San Jose to north of Taylor Street
  - Expansion of Interstate 280 to eight lanes from Interstate 880 to Magdalena Avenue
  - Widening of Interstate 880 to six lanes north of U.S. Highway 101.
  - Modification of State Route 237 to provide eight lanes (six lanes plus two auxiliary lanes)
  - Construction of Riverfront Road between Coleman Avenue and Santa Clara Street
- Increased diversion to transit and carpools, with an expanded county-wide High Occupancy Vehicle lane program, which includes Interstate 280, U.S. Highway 101, State Route 237, San Tomas Expressway, Capital Expressway, Montague Expressway, Lawrence Expressway and Central Expressway.

The City's traffic model, described above, was utilized for estimating the Year-2000 base traffic volumes in the vicinity of the project site. The model run that was used assumed that the Julian-Stockton Redevelopment Area will be redeveloped with Research and Development and professional office-type land uses. This model run assumed no development(s) on the project site.

Different factors were applied to the PM peak hour traffic volumes produced by the City's traffic model for projections of traffic volumes during the other time periods under study. These peak hour factors were developed from the 24 hour machine counts taken along the various roadway facilities in the project area.

4. Intersection Operation -- Year 2000 (Base Condition) Level of Service

The projected operation of the intersection in the vicinity of the project site is described in Table B-8.

The number of intersections that would operate under unacceptable conditions for each of the time scenarios are as follows:

- Weekday PM peak hour: 5 intersections
- Weekday Evening peak hour: 1 intersection
- Weekday Late Evening peak hour: None
- Friday Evening Peak hour: 1 intersection
- Saturday Evening peak hour: None

PM Peak Hour

By Year-2000, even without the proposed arena project, the intersection of State Route 87 and Taylor Street would operate at a LOS F (with a V/C ratio = 2.1).

TABLE B-8

YEAR 2000 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	C	.749	A	.492	A	.183	A	.482	N.A. /c/	
Stockton & Taylor	B	.641	A	.446	A	.207	A	.465	N.A.	
Coleman & Taylor	D	.828	A	.253	A	.255	A	.547	N.A.	
S.R. 87 & Taylor	F	2.098	F	1.316	A	.539	F	1.316	N.A.	
River Front & Coleman	A	.482	A	.321	A	.152	A	.321	A	.201
S.R. Off-Ramp (SB) & Coleman	A	.380	A	.253	A	.120	A	.253	N.A.	
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	C	.751	A	.477	A	.216	A	.477	A	.289
Alameda & Julian/Hanchett	F	1.000	A	.538	A	.213	A	.565	A	.302
Stockton & Julian	E	.943	A	.370	A	.145	A	.446	A	.228
River Front & Julian	F	1.093	A	.515	A	.174	A	.596	A	.298
S.R. 87 On-Ramp (SB) & Julian	A	.577	A	.352	A	.166	A	.360	A	.220
S.R. 87 On-Ramp (NB)/Notre Dame & Julian	A	.529	A	.332	A	.145	A	.300	A	.193
Alameda/Race & Martin	A	.095	A	.061	A	.028	A	.061	A	0.37
Stockton & Alameda	A	.566	A	.331	A	.138	A	.366	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	A	.526	A	.319	A	.155	A	.361	A	.214
River Front & Santa Clara	C	.798	A	.493	A	.236	A	.538	A	.322
S.R. 87 Off-Ramp (NB) & Santa Clara	A	.390	A	.237	A	.115	A	.267	A	.159
Santa Teresa (N. Almaden) & Santa Clara	F	1.096	B	.653	A	.299	A	.746	A	.412
Notre Dame & Santa Clara	B	.609	A	.377	A	.167	A	.434	A	.225

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed

This intersection would require major modifications for an efficient and acceptable level of operation.

The other four intersections projected to operate under unacceptable conditions are:

- The Alameda and Juilan/Hanchett Streets
- Stockton and Julian Streets
- Riverfront Road and Julian Street
- Santa Teresa and Santa Clara Streets

Therefore, five intersections would be significantly impacted under the base conditions for the PM peak hour for Year-2000.

5. Year 2000 Base Plus Project Intersection Operations and Levels of Service

The intersection level of service calculation results for both seating capacities (i.e., 17,500 seats and 20,000 seats) with maximum attendance are presented in Tables B-9 and B-10.

The number of intersections which would operate under unacceptable conditions are as follows:

- Weekday PM peak hour: 11 intersections
- Weekday Evening peak hour: 3 intersections
- Weekday Late Evening peak hour: None (17,500 attendance)
- Weekday Late Evening peak hour: 1 intersection (20,000 attendance)
- Friday Evening peak hour: 3 intersections
- Saturday Evening peak hour: 2 intersections

When these results are compared with the results from Year-2000 base conditions (without the proposed arena project), it is observed that five of the eleven intersections would already operate under unacceptable conditions during the PM peak hour, and one intersection during the evening peak hour, prior to the addition of the arena traffic through these intersections.

PM Peak Hour

Up to eleven intersections would operate at LOS E or F during the PM peak hour. For all eleven intersections, the impacts of the arena traffic on the base conditions are considered significant by the City of San Jose's Level of Service policy.

Evening Peak Hour

The intersection of State Route 87 and Taylor Street would require modifications, with or without the proposed project, to improve not only its PM peak hour operation but also its Evening peak hour operations.

The two other intersections which would operated under LOS F conditions are:

- State Route 87 (NB) Off-Ramp and Santa Clara Street; and
- Santa Teresa and Santa Clara Streets.

TABLE B-9

YEAR 2000 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	D	.835	B	.619	A	.283	B	.610	N.A. /c/	
Stockton & Taylor	C	.715	A	.460	A	.207	A	.477	N.A.	
Coleman & Taylor	E	.945	B	.669	A	.285	B	.669	N.A.	
S.R. 87 & Taylor	F	1.885	F	1.524	A	.539	F	1.524	N.A.	
River Front & Coleman	C	.714	A	.546	A	.320	A	.546	A	.421
S.R. 87 Off-Ramp (SB) & Coleman	A	.476	A	.347	A	.120	A	.347	N.A.	
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	E	.931	A	.534	A	.222	A	.534	A	.346
Alameda & Julian/Hanchett	F	1.059	B	.669	A	.303	B	.688	A	.362
Stockton & Julian	F	1.095	B	.636	A	.360	C	.734	A	.458
River Front & Julian	F	1.858	F	1.460	D	.803	F	1.506	F	1.161
S.R. 87 Off-Ramp (SB) & Julian	E	.944	C	.776	A	.520	C	.776	B	.648
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	E	.919	B	.670	D	.871	B	.670	A	.475
Alameda/Race & Martin	A	.553	A	.401	A	.125	A	.392	A	.252
Stockton & Alameda	B	.624	A	.390	A	.194	A	.424	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	A	.590	A	.387	A	.155	A	.428	A	.285
River Front & Santa Clara	F	1.012	C	.719	A	.350	C	.763	A	.568
S.R. 87 Off-Ramp (NB) & Santa Clara	B	.653	A	.517	A	.367	A	.517	A	.455
Santa Teresa (N. Almaden) & Santa Clara	F	1.647	F	1.203	A	.484	F	1.245	E	.960
Notre Dame & Santa Clara	E	.932	B	.664	A	.455	B	.724	A	.501

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed

TABLE B-10

YEAR 2000 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	WKDY PM		WKDY EVE.		WKDY LATE EVE.		FRI. EVE.		SAT. EVE.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Alameda & Taylor/Naglee	D	.851	B	.632	A	.297	B	.624	N.A. /c/	
Stockton & Taylor	C	.720	A	.461	A	.207	A	.479	N.A.	
Coleman & Taylor	E	.960	B	.686	A	.304	B	.686	N.A.	
S.R. 87 & Taylor	F	1.879	F	1.530	A	.539	F	1.530	N.A.	
River Front & Coleman	C	.744	A	.575	A	.349	A	.575	N.A.	
S.R. 87 Off-Ramp (SB) & Coleman	A	.476	A	.347	A	.120	A	.347	A	.449
San Pedro & Julian	N.A.		N.A.		N.A.		N.A.		N.A.	
Market & Julian	E	.938	A	.540	A	.222	A	.540	A	.351
Alameda & Julian/Hanchett	F	1.083	B	.692	A	.318	C	.711	A	.413
Stockton & Julian	F	1.109	B	.648	A	.372	C	.744	A	.470
River Front & Julian	F	1.859	F	1.464	D	.859	F	1.505	F	1.290
S.R. 87 Off-Ramp (SB) & Julian	F	1.041	D	.875	A	.564	D	.875	C	.751
S.R. 87 Off-Ramp (NB)/Notre Dame & Julian	F	1.045	C	.759	E	.912	C	.773	A	.561
Alameda/Race & Martin	A	.571	A	.419	A	.129	A	.411	A	.271
Stockton & Alameda	B	.641	A	.408	A	.213	A	.442	N.A.	
Cahill & Alameda	N.A.		N.A.		N.A.		N.A.		N.A.	
Montgomery & Alameda	B	.605	A	.403	A	.155	A	.444	A	.301
River Front & Santa Clara	F	1.037	C	.757	A	.377	D	.801	B	.603
S.R. 87 Off-Ramp (NB) & Santa Clara	C	.741	A	.575	A	.389	B	.607	A	.513
Santa Teresa (N. Almaden) & Santa Clara	F	1.664	F	1.216	B	.614	F	1.312	E	.976
Notre Dame & Santa Clara	E	.950	B	.683	A	.538	C	.742	A	.520

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable or Not Analyzed

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce identified adverse traffic and circulation impacts. These roadway improvements would mitigate impacts that occur within one or more of the 24 scenarios for which traffic impacts were analyzed, as shown in Tables B-11 and B-12 (Matrix of Impacted Intersections for the 24 Analyzed Traffic Scenarios).

Mitigation would be required at 13 intersections for impacts resulting from an arena event beginning at 6:00 PM with a 20,000 attendance level (i.e., a nationally televised NBA play-off game). This type of event with a 6:00 PM starting time is expected to occur very infrequently, approximately three to five times per year. Other starting times, as reflected in Tables B-11 and B-12, would not create as significant impacts on the existing intersections. The required roadway-related improvements for Year-1991 and Year-2000 are outlined below, except for two intersections where mitigation was Impractical.

1. Intersection of The Alameda and Taylor/Naglee Streets **(Included in Project)**

   Under projected Year-1991 base conditions, this intersection would operate at LOS E (V/C = 0.992). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.076) for the maximum attendance level.

   Under existing conditions, there exists two through lanes in both the northbound and southbound directions. It is recommended that the intersection be restriped and reconstructed to provide an additional lane in both directions. This would require on-street parking prohibitions on both sides of The Alameda. This would improve the projected LOS to D (V/C = 0.890).

   This mitigation would be for two scenarios in Year-1991. Implementation of this mitigation would reduce the identified impact to a nonsignificant level.

2. Intersection of Coleman Avenue and Taylor Street

   This intersection is projected to operate at a level worse than D only for the maximum attendance level of 20,000 persons. For this condition, the intersection would operate at LOS E (V/C = 0.930).

   Under existing conditions, this intersection is constructed up to ite right-of-way limits. No mitigations are proposed for this intersection.

   This would be a significant and unavoidable impact.

3. Intersection of State Route 87 and Taylor Street **(Not Presently Included in Project)**

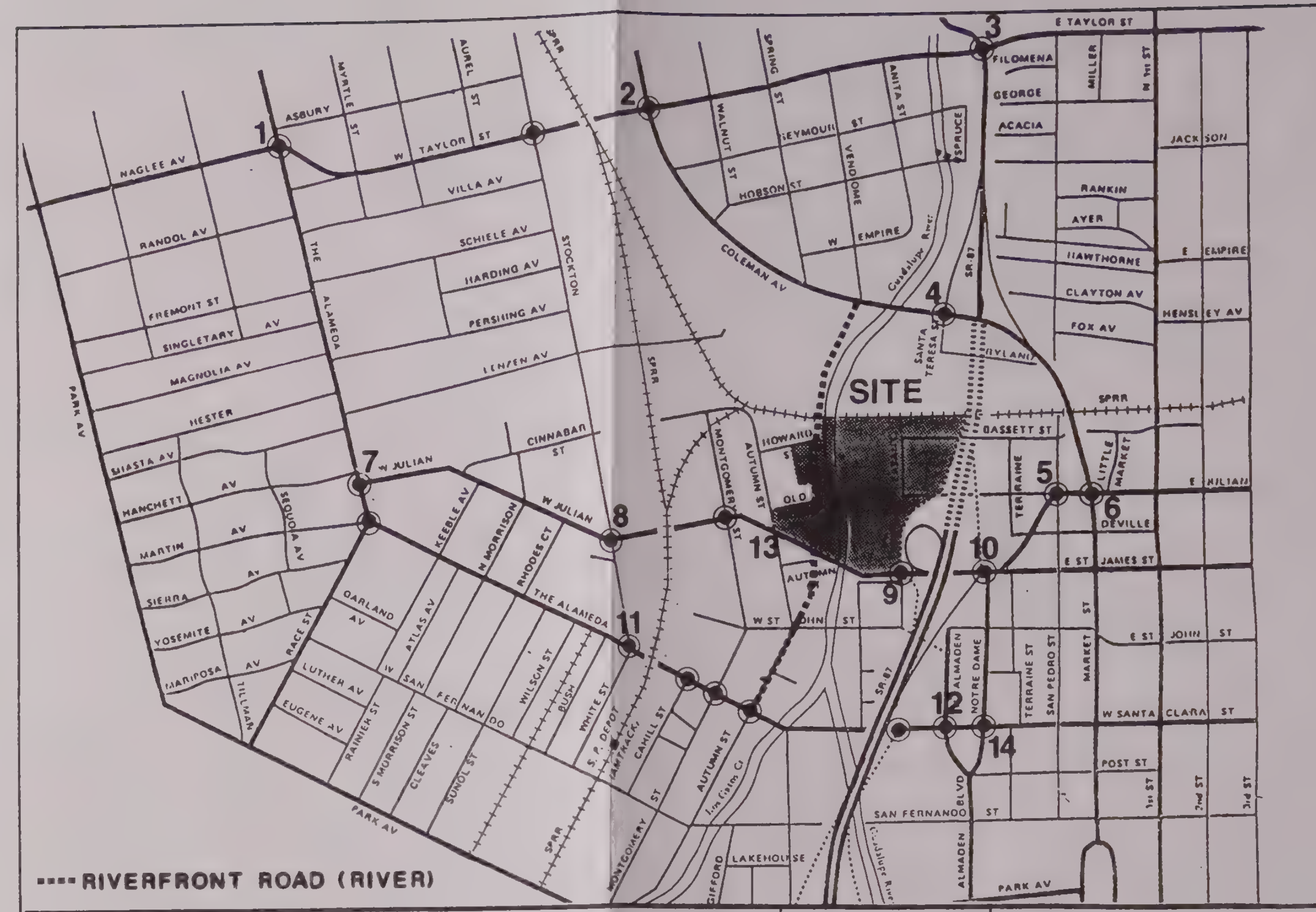
   Under projected Year-1991 base conditions, this intersection would operate at LOS D (V/C = 0.842). With the arena traffic included, the intersection operation would deteriorate to LOS F ((V/C = 1.132) for the maximum attendance level three to five times per year. It is recommended that this intersection be grade-separated with ramps constructed to permit all turning movements. This grade separation would also benefit the regional circulation system as State Route 87 is a regional highway serving the greater San Jose area. This intersection is projected to operate at LOS F (2.098) during the Year-2000 base conditions.

SITE B
TABLE B-11

INTERSECTION	YEAR 1991 — 20,000 ATTENDANCE: A (* WEEKDAY PM Pk. Hr. 6:00 PM Event)	B (WEEKDAY PM Pk. Hr. 7:30 PM Event)	C (WEEKDAY EVENING Pk. Hr.)	D (WEEKDAY LATE EVENING Pk. Hr.)	E (FRIDAY EVENING Pk. Hr.)	F (SATURDAY EVENING Pk. Hr.)	17,500 ATTENDANCE: A (* WEEKDAY PM Pk. Hr. 6:00 PM Event)	B (WEEKDAY PM Pk. Hr. 7:30 PM Event)	C (WEEKDAY EVENING Pk. Hr.)	D (WEEKDAY LATE EVENING Pk. Hr.)	E (FRIDAY EVENING Pk. Hr.)	F (SATURDAY EVENING Pk. Hr.)
1. Alameda at Taylor/Naglee	◈						◈					
2. Coleman at Taylor	○						○					
3. S.R. 87 at Taylor	○						○					
4. S.R. 87 Off-Ramp (SB) at Coleman	○						○					
5. San Pedro at Julian	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈
6. Market at Julian	○						○					
7. Alameda at Julian/Hanchett	◈						◈					
8. Stockton at Julian	○						○					
9. SR 87 Off-Ramp (SB) at Julian	○											
10. SR 87 Off-Ramp (NB)/Notre Dame at Julian	○						○					
11. Stockton at Alameda	◈	◈					◈	◈				
12. Santa Teresa at Santa Clara	◈	◈			◈		◈	◈			◈	
13. Autumn at Julian	○	◆	◆	○	◆	◆	○	◆	◆	○	◆	◆
14. Notre Dame at Santa Clara	○						○					

* EVENTS TO OCCUR 2–5 TIMES A YEAR

YEAR 1991 MATRIX OF IMPACTED INTERSECTIONS & MITIGATION FOR THE 12 ANALYSED TRAFFIC SCENARIOS



TRAFFIC ANALYSIS INTERSECTION LOCATIONS

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

- A – Weekday PM Peak Hour with a starting time of 6:00 PM.
- B – Weekday PM Peak Hour with a starting time of 7:30 PM.
- C – Weekday Evening Peak Hour with a starting time of 7:30 PM.
- D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.
- E – Friday Evening Peak Hour with a starting time of 7:30 PM.
- F – Saturday Evening Peak Hour with a starting time of 7:30 PM.

LEGEND

- ○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)
- ◈ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT
- △ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA
- ◆ IMPACT ON SITE ACCESS AND INTERSECTION OPERATION (NOT LEVEL OF SERVICE)

SITE B
TABLE B-12

INTERSECTION	YEAR 2000											
	20,000 ATTENDANCE						17,500 ATTENDANCE					
	A * WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.	A * WEEKDAY PM Pk. Hr. 6:00 PM Event	B WEEKDAY PM Pk. Hr. 7:30 PM Event	C WEEKDAY EVENING Pk. Hr.	D WEEKDAY LATE EVENING Pk. Hr.	E FRIDAY EVENING Pk. Hr.	F SATURDAY EVENING Pk. Hr.
1. Alameda at Taylor/Naglee	△											
2. Coleman at Taylor	○						○					
3. S.R. 87 at Taylor	○	○	○		○		○	○	○		○	
4. S.R. 87 Off-Ramp (SB) at Coleman	△											
5. San Pedro at Julian	△											
6. Market at Julian	○						○					
7. Alameda at Julian/Hanchett	⊖◇						⊖◇					
8. Stockton at Julian	○						○					
9. SR 87 Off-Ramp (SB) at Julian	○						○					
10. SR 87 Off-Ramp (NB)/Notre Dame at Julian	○			○			○					
11. Stockton at Alameda	△											
12. Santa Teresa at Santa Clara	⊖◇	⊖◇	⊖◇		⊖◇	⊖◇	⊖◇	⊖◇	⊖◇		⊖◇	⊖◇
13. Autumn at Julian	△											
14. Notre Dame at Santa Clara	○						○					
15. Riverfront at Julian	○	○	○	◆	○	○	○	○	○	◆	○	○
16. Riverfront at Santa Clara	○						○					

* EVENTS TO OCCUR 2-5 TIMES A YEAR

YEAR 2000 MATRIX OF IMPACTED INTERSECTIONS & MITIGATION FOR THE 12 ANALYSED TRAFFIC SCENARIOS

TRAFFIC ANALYSIS INTERSECTION LOCATIONS

The following matrix summarizes the traffic intersection impacts and mitigation for the proposed project. Six different scenarios are identified as follows:

A – Weekday PM Peak Hour with a starting time of 6:00 PM.
B – Weekday PM Peak Hour with a starting time of 7:30 PM.
C – Weekday Evening Peak Hour with a starting time of 7:30 PM.
D – Weekday Late Evening Peak Hour with an ending time of 10:30 PM.
E – Friday Evening Peak Hour with a starting time of 7:30 PM.
F – Saturday Evening Peak Hour with a starting time of 7:30 PM.

LEGEND

○ IMPACTED INTERSECTIONS (LEVEL OF SERVICE)

⊖◇ IMPACTED INTERSECTIONS WITH MITIGATION INCLUDED IN THE PROJECT

△ HORIZON 2000 GENERAL PLAN TRAFFIC MODEL ASSUMED MITIGATION WITH OR WITHOUT ARENA

◆ IMPACT ON SITE ACCESS AND INTERSECTION OPERATION (NOT LEVEL OF SERVICE)

This mitigation would be for two scenarios in Year-1991 and for eight scenarios in Year-2000. Implementation of this mitigation measure would reduce the identified impact to a nonsignificant level.

4. Intersection of State Route 87 Off-Ramp (Southbound) and Coleman Avenue **(Not Presently Included in Project)**

Under 1991 conditions, this intersection would operate at a LOS F for both attendance levels during PM peak hour, three to five times per year. It is recommended that an additional through lane be added in both the eastbound and westbound directions, if feasible. This would improve the intersection operation to acceptable levels.

This mitigation would be for two scenarios in Year-1991. Implementation of this mitigation would reduce the impact to a nonsignificant level.

5. Intersection of San Pedro and Julian Streets **(Included in Project)**

Currently, this intersection is controlled with STOP signs for San Pedro Street traffic. Under existing conditions and Year 1991 PM peak hour traffic conditions, this intersection is and would continue to operate below LOS D if it remains unsignalized.

Due to its downtown location, this intersection is exempted from the City of San Jose's Level of Service policy. Even so, it is recommended that a signal be installed at this intersection. Implementation of this mitigation measure would not only improve the operation of this intersection during the PM peak hour, but also during the evening peak hours. This intersection was assumed to be signalized for Year-2000 projections.

Although this intersection is located in the downtown area of San Jose and is therefore exempted from the City's Level of Service policy, the impact to the intersection for 12 scenarios in Year-1991 without mitigation, would be significant and unavoidable.

6. Intersection of Market and Julian Streets **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS E (V/C = 0.942). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.279) for the maximum attendance level. This intersection is exempt from the City of San Jose' Level of Service Policy.

Although this intersection is located in the downtown area of San Jose and is therefore exempted from the City's Level of Service policy, the impact to the intersection for the two scenarios in Year-1991 and the two scenarios in Year-2000 would be significant and unavoidable without the implementation of mitigation.

7. Intersection of The Alameda and Julian/Hanchett Streets **(Included in Project)**

Under existing conditions, the Julian and Hanchett Streets legs of this intersection are offset from one another. With the arena traffic included, the operation of this intersection would deteriorate from LOS D (V/C = 0.838) to LOS E (V/C = 0.964).

To improve the oneration of this intersection during this time period, it is recommended that a barrier median be constructed on The Alameda across its intersection with Hanchett Street. This barrier median extension would result in additional storage capacity for left-turning vehicles. Implementation of the mitigation measure will restrict the movements on Hanchett Street to include only right-turns into and out of this intersection. In addition, it is recommended that an island be constructed on the Hanchett Street leg. This will assist motorists and provide them with a clear indicator of the permitted movements.

Implementation of this improvement would improve the intersection operation to a LOS D (V/C = 0.852). Accordingly, this would mitigate the impact to a nonsignificant level.

8. Intersection of Stockton and Julian Streets **(Not Presently Included in Project)**

Under projected Year-1991 base conditions, this intersection would operate at LOS F (V/C = 1.118). With the arena traffic included, the intersection operation would deteriorate to LOS F (V/C = 1.288) at maximum attendance level.

In order to improve the operation of this intersection during this time period, it would be necessary to reconstruct the intersection to provide the following lane geometrics:

North Approach: An exclusive right-turn lane, and exclusive through lane, a shared through and left-turn lane and an exclusive left-turn lane.

West Approach: A shared through and right-turn lane and a shared through and left-turn lane.

Implementation of these mitigation measures would require land acquisition and the widening of the Julian Street underpass to provide a four-lane cross-section. With these improvements, the projected intersection LOS would improve to LOS D (V/C = 0.831).

This mitigation would be for two scenarios in Year-1991 and for two scenarios in Year-2000. Implementation of this mitigation would reduce the identified impact to a nonsignificant level. However, there could potentially be significant secondary impacts resulting from the capacity of this intersection, since it may increase traffic volumes to the west on Shasta and Hanchett Avenues.

9. Intersection of State Route 87 Off-Ramp (Southbound) and Julian Street **(Not Presently Included in Project)**

This intersection is exempted from the City of San Jose's Level of Service policy due to its downtown location. Even so, it is recommended that the southbound off-ramp be widened to provide an additional through lane. This would improve the intersection operation from LOS E (V/C = 0.981) to LOS D (V/C = 0.831). The off-ramp would have adequate storage space to accommodate the projected traffic flows.

This mitigation would be for one scenario in Year-1991 and for two scenarios in Year-2000. Although this intersection is located in the downtown area of San Jose and is therefore exempted from the City's Level of Service policy, the impact to the intersection operation would be significant and unavoidable without the implementation of the identified mitigation.

10. Intersection of State Route 87 On-Ramp (Northbound)/Julian and Notre Dame Streets **(Not Presently Included in Project)**

This intersection is exempted from the City of San Jose's Level of Service policy. With the arena traffic included, this intersection is projected to operate at LOS F (V/C = 1.128). For the two to five times during the year when events start at 6:00 PM, the operation of this intersection would remain below acceptable standards. The maximum back of queue estimated for the off-ramp traffic extends 250 feet southerly of the nose of the off-ramp.

It is possible that the future PM peak hour traffic conditions at this ramp intersection may not be as bad as the numbers suggest. Since the operation of the State Route 87 off-ramp at Santa Clara Street (just south of this off-ramp) is projected to be above the minimum acceptable standard, it is likely that some of the arena patrons intending to use the more convenient off-ramp would instead opt to use the Santa Clara Street off-ramp.

Although this intersection is located in the downtown area of San Jose and is therefore exempted from the City's Level of Sevice policy, the impact to this intersection would be significant and unavoidable without the implementation of mitigation.

11. Intersection of The Alameda and Stockton Avenue **(Included in Project)**

Currently, Stockton Avenue intersects with The Alameda at an acute angle just west of the Southern Pacific Railroad underpass. The intersection is controlled by a STOP sign for Stockton Street traffic. Under the STOP Sign Control in 1991 for both the 17,500 and 20,000 attendance levels during the weekday PM peak hour this intersection would operate at LOS F. The mitigation for improvement would be to signalize the intersection.

This mitigation would be for four scenarios in Year-1991. It is assumed that this intersection would be signalized in Year-2000. Implementation of the identified mitigation would reduce the impact at this intersection to a nonsignificant level.

12. Intersection of Santa Teresa and Santa Clara Streets **(Included in Project)**

This intersection is exempted from the City of San Jose's Level of Service policy due to its downtown location. Even so, the following mitigation measures are recommended:

West Approach: The segment of roadway between Notre Dame and Santa Tersesa Streets should be restriped to provide an additional westbound through lane.

East Approach: The segment of roadway between the off-ramp and Terraine Street should be restriped to provide an additional eastbound through lane.

Both of these measures would require parking prohibitions.

Implementation of this mitigation measure would improve the operation of the intersection of Santa Teresa and Santa Clara Streets from LOS F (V/C = 1.471) to LOS F (1.073).

Due to physical constraints, no additional mitigation measures are possible at this intersection. When the arena events begin at 6:00 PM, serious operational problems with long queues and delays would occur at this intersection. This would be a significant and unavoidable impact.

13. Intersection of Autumn and Julian Streets **(Not Presently Included in Project)**

In Year-1991 for both the 17,500 and 20,000 attendance levels, this intersection would operate at an unacceptable LOS for the Weekday PM peak and the Late Evening peak hours. The mitigation for this intersection would include the provision of one exclusive right-turn lane, one shared through and right-turn lane and one through lane in the westbound direction. Additionally, this intersection should be under police control for the hour immediately following the conclusion of a major arena event. It is anticipated that the northerly approach would have heavy turning volumes requiring the equivalent two left-turn lanes and one shared through and right-turn lane.

For site access, circulation and overall intersection operation, these improvements would be necessary for all scenarios in order to meet the LOS criteria established by the City of San Jose. In Year-2000, this intersection would be replaced by the new intersection of Riverfront Road and Julian Street.

With the implementation of the mitigation listed above, impacts at this intersection would be reduced to a nonsignificant level.

14. Intersection of Notre Dame and Santa Clara Streets **(Not Presently Included in Project)**

This intersection would drop from a LOS C (0.733) to LOS F with both attendance levels. It is recommended that the intersection be restriped to provide an additional lane in both the eastbound and westbound directions. This would require parking prohibitions and would improve the operation of this intersection to LOS D (V/C = 0.893).

With the mitigation, impacts would be reduced to a nonsignificant level.

15. Intersection of Riverfront Road (Autumn Street) and Julian Street **(Not Presently Included in Project)**

The Guadalupe River Park Plan has proposed to add a new road facility west of the river which will be constructed on the Autumn Street alignment south of Saint John Street and follows a new alignment north of Saint John Street.

In the Year-2000 for both the 17,500 and 20,000 attendance levels during the weekday PM peak, weekday evening, Friday evening and Saturday evening peak hours this intersection would experience heavy congestion.

The following lane geometrics are required for this intersection:

North Approach: An exclusive left-turn lane, shared left-turn and through lane and a shared right-turn and through lane.

East Approach: An exclusive left-turn lane, three through lanes, and an exclusive right-turn lane.

South Approach: An exclusive left-turn lane, an exclusive through lane, and ashared through and right-turn lane.

West Approach: An exclusive left-turn lane, two through lanes, and an exclusive right-turn lane.

From a site access, circulation and overall intersection operation, it would be necessary to implement these measures to mitigate the adverse impacts identified for all of the traffic scenarios.

With these lane configurations, the intersection would operate at LOS D. Accordingly, the impact would be nonsignificant.

16. Intersection of Riverfront Road and Santa Clara Street **(Not Presently Included in Project)**

In the Year-2000, for both the 17,500 and 20,000 attendance levels during the weekday PM peak hour this intersection would operate at LOS F. This would be a significant impact.

In terms of mitigations, it would be required that the east and west approaches have one right-turn lane, two through lanes and one left-turn lane. Similarily the southbound approach should have two left-turn lanes, and two through lanes. The northbound approach should have one left-turn land and two through lanes.

C. PARKING ANALYSIS

EXISTING SETTING

The parking demand characteristics of arenas vary greatly because of the differing type, attendance levels and times of events. Also, the parking needs for arena events are influenced by the mode of arrival, the vehicle occupancy ratio and the average and peak attendance levels.

The proposed arena is planned to accommodate different types of events at various hours of the afternoon and evening. Each type of event would generate different parking demands. Broad categories of events would include professional and college sports, family shows, concerts and community/convention functions.

1 Existing Parking

A parking inventory and parking usage survey was conducted to assess the existing on-street and off-street available parking and utilization within a walking distance of 3,000 feet of the proposed arena.

On-Street Parking Inventory

A parking inventory of the existing curbside (on-street) parking spaces was conducted in February, 1987, for the study area. In the parking inventory, the current parking restrictions were documented. There are nine different parking restrictions currently imposed on the available curbside spaces within the study area. The number of available parking spaces was identified for the curbs where parking is permitted. There exists a total of 1,598 spaces, as indicated in Table B-13. The on-street parking study area is shown in Figure B-8.

On-Street Usage

A curbside, on-street parking usage survey was conducted on a weekday in the evening period, between 7:30 and 8:30 PM. During the survey, all curbside spaces were observed, and the number of parked cars was counted. This survey provided information regarding the current demand for on-street parking in the evening.

On-street parking was analyzed by dividing the study area into nine zones, as shown in Figure B-8. The on-street utilization is summarized in Table B-14 for the evening period between 7:30 and 8:30 PM.

According to the parking utilization survey, Parking Zone VIII showed the highest usage of 61 percent. The next highest usage was in Zone III with a 50 percent utilization. Zone V includes the area proposed for the arena. This zone had a low usage of 18 percent.

During the weekday evening period, there is an overall usage of 34 percent, which is not considered to be high. The evening parking is related to the existing land uses, and the highest utilization (61 percent) occurs in the commercial areas offering evening entertainment.

TABLE B-13

ON-STREET PARKING WEEKDAY EVENING UTILIZATION (7:30 to 8:30 PM)

Parking Zone	On-Street Spaces	Cars Parked	Percent Utilization
I	136	17	13%
II	225	57	25%
III	285	145	50%
IV	146	27	18%
V	200	35	18%
VI	134	23	17%
VII	145	69	48%
VIII	243	149	61%
IX	84	12	14%
TOTAL	1,598	534	33%

ON-STREET PARKING STUDY ZONE BOUNDARIES

FIGURE B-8

TABLE B-14

OFF-STREET PARKING INVENTORY

Description		Parking Spaces
Existing Facilities		
1.	Surface Lot North of Julian St.	160
2.	Surface Lot North of Devine St.	170
3.	Surface Lot South of Devine St.	100
4.	Surface Lot North of St. John St.	75
5.	Market Street Garage	1,500
6.	Pacific Valley Bank Garage	700
7.	Park Center Plaza III	1,220
	Total Number of Existing Spaces	3,925
Facilities Under Construction or Approved for Construction		
1.	Boone Fox Building	873
2.	Herron Building	483
3.	William Wilson Building	715
4.	Parking Under Route 87	320
	Total Number of Proposed Spaces	2,391
	GRAND TOTAL	6,316

TABLE B-15

OFF-STREET PARKING USAGE

Garage	Spaces	# of Cars Parked During Evening Peak Period	Percentage Utilization
Park Center Plaza I	1,076	283	26%
Park Center Plaza II	302	322	107%
Park Center Plaza III	1,220	148	12%
Market Street Garage	1,500	185	12%

Off-Street Parking Inventory

The off-street parking inventory was conducted to determine the avaiable parking spaces. These include the public and private surface lots and garages within a 3,000 foot walking distance of the project site. Also included in the inventory is the future parking spaces that will be available in the next four to five years as a result of the construction of new buildings. These buildings are either under construction or approved for construction in the next few years.

The inventory listed in Table B-14 shows that there are 3,925 existing off-street parking spaces. The additional 2,391 off-street spaces that are either under construction or approved for construction will bring the total number of off-street spaces to 6,316.

Off-Street Usage

The parking usage survey for the existing parking facilities was conducted for the afternoon peak between 2:00 and 3:00 PM, and the Friday evening peak period between 6:00 and 9:00 PM. The afternoon peak period surveys indicate that the existing garages were over 80 percent utilized by the tenants of the buildings. The surface lots east of State Route 87 are sparsely occupied with usage varying between 25 to 30 percent. The evening peak period utilization of the garages was reported to vary between 10 and 15 percent.

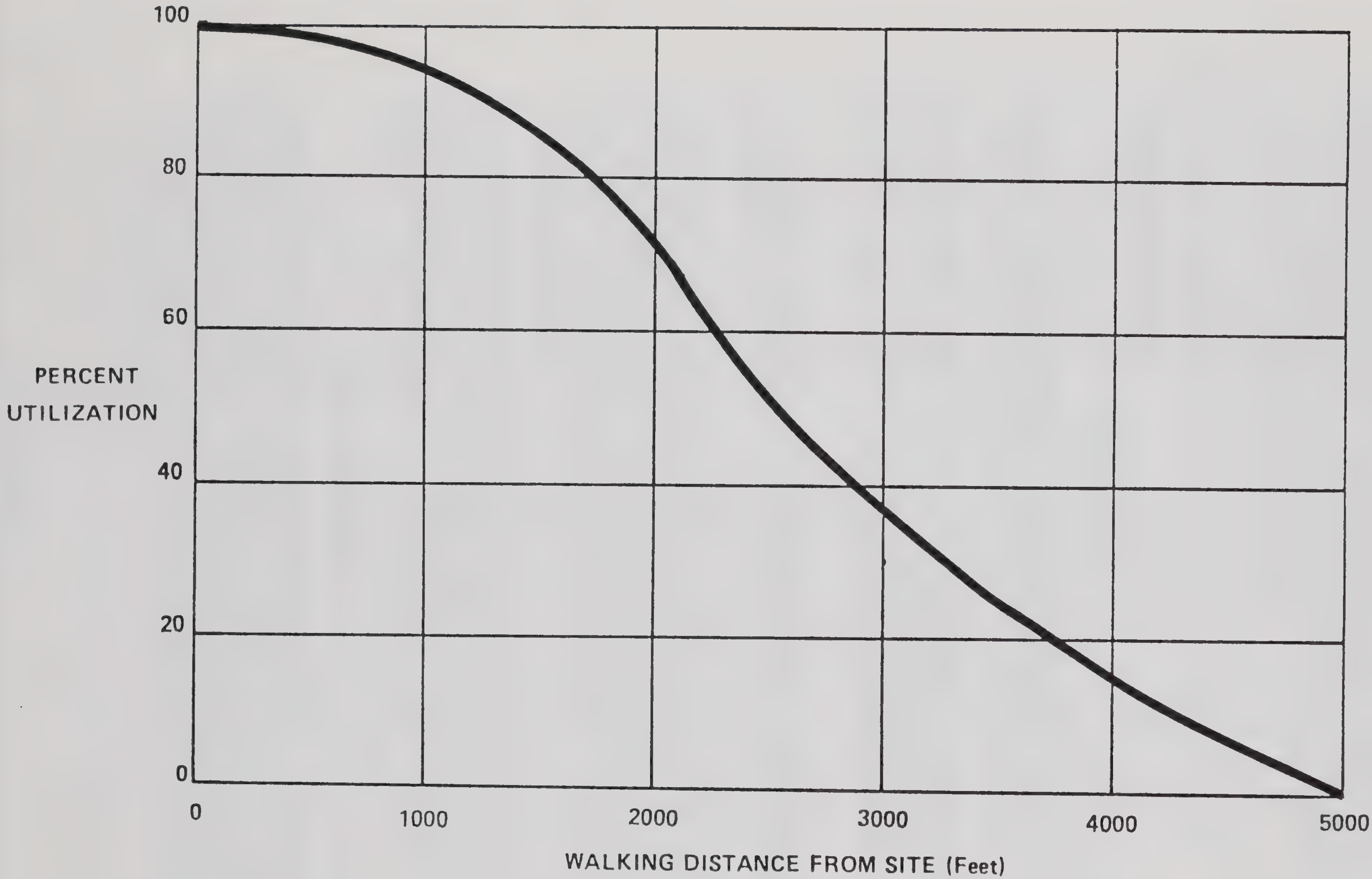
2. <u>Parking Supply</u>

The parking demand for an arena facility can be satisfied in a number of different ways, depending on the day and the time of the event. Some of the methods to satisfy the arena parking demand include the following:

- Provide parking on the street
- Use the existing surrounding parking supply that is within an acceptable walking distance or have non-concurrent parking demands
- Provide a remote parking area with a shuttle bus operation to the arena facility

To satisfy the parking demand for the project site, all three of the strategies were adopted. Due to the size of the available parcels, not all parking could be accommodated on the project site. It would be necessary to utilize existing parking facilities that are available during the evenings and on weekends that are within an acceptable walking distance.

Research has shown that most persons will accept walking distances ranging up to 1,500 feet between the parking area and the nearest entrance to the arena site, and some persons will accept walks of 2,000 feet or more. A relationship between walking distance and the use of parking facilities by the arena patrons was developed based upon previous experiences at similar arena sites in other cities. A graph showing the relationship between walking distance and the percentage use of a parking facility is shown in Figure B-9. This relationship was verified by the results of a study conducted for the acceptance of walking distance to rapid transit stations (Stringham, 1980).



PARKING FACILITY UTILIZATION

FIGURE B-9

Recent studies have indicated that there is an upper limit to the tolerance of walking distances under North American conditions. However, the trip purpose has some bearing on the length of walking distance between the parking area and the final destination. For example, people going to an arena for recreational purposes are willing to accept longer than usual distances (over 3,000 feet) as compared to shopping trips, which require the carrying of shopping bags, et cetera. In short, the tolerance of arena patrons has been observed to be high for accepting longer than usual walking distances.

POTENTIALLY SIGNIFICANT IMPACTS

1. Arena Parking Demand

Travel Mode

Use of the private automobile an an arrival mode to the arena is largely dependent on the cost of parking, the available parking supply and the existence of other convenient transportation alternatives for the arena patrons.

Due to its location, none of the regular County Transit routes serve the project site. Also, the Cahill CalTrain Station is located approximately 0.75 miles west of the project site. However, it would be possible to provide future express bus routes at a premium cost. Charter buses could also bring Arena patrons to the facility.

The Light Rail System on North First Street will have a station at First and St. James Streets, which is about 2,300 feet or a ten minute walking distance from the project site.

For this study, it was assumed that less than one percent of the total arena patrons would use express and charter buses, and five percent of the patrons living in the Almaden Valley and South San Jose would use the Light Rail system to and from the project site. Use of CalTrain service would be an estimated two percent of the peninsula patrons residing in the U.S. Highway 101 travel corridor. Also, for the private automobile users, a vehicle occupancy rate of 3.0 persons per vehicle was assumed.

The project, as proposed, would provide approximately 39 percent of the parking on-site for a capacity demand at 17,500 seats, and 34 percent for a capacity demand at 20,000 seats. The remaining parking demand (approximately 65 percent of the required parking) would be provided at parking facilities located off-site.

Vehicle Occupancy

Vehicle occupancy for an arena varies by the type of event. For example, family shows, which attract many youngsters and senior citizens, normally have a higher person-per-vehicle ratio than sporting or other events. In the past decade, the professional basketball games at the Oakland Colisuem averaged from 2.90 to 3.15 persons per vehicle. During the same period at the Coliseum, family shows ranged from 4.5 to 5.0 persons per vehicle. Concerts typically range between 3.5 and 4.0 persons per vehicle.

The firm of Coliseum Consultants is a member of the team assembled for the study of alternative arena sites in San Jose. Based on their experience, the consultants recommended that 3.0 persons per vehicle be used as the average vehicle occupancy rate for this study. On the basis of this recommendation, a vehicle occupancy factor of 3.0 was adopted.

Peak Attendance Period

The attraction of people to events held at the proposed arena will depend largely on the patrons' available leisure time. As a result, the majority of events will be held during evenings and on weekends to avoid conflicts with normal working hours.

Experience with other indoor arena facilities around the country has shown that most regularly scheduled professional sporting events are held on weekends and during weekday evenings. Certain other special events may have weekday show times, although peak attendance usually occurs during the evenings and on weekends. For this analysis, the parking demand was estimated for two time periods. The parking demand for the evening events was estimated based on the full capacity attendance for major events. The parking demand for afternoon events, consisting of family shows such as circuses and ice shows, was estimated for an average attendance level based upon the experiences of other similar arena facilities around the country.

Arena Size

The proposed arena would be designed to host more than one type of attraction. Similar arenas are used for sporting events such as National Basketball Association games, ice hockey, professional boxing and wrestling and tennis tournaments. In addition to the sporting events, the arena would also host events not related to sports (i.e., concerts, ice shows and circuses). Planning principles ditate that for an arena facility intended for multiple uses, the regular event generating the largest parking demand should be the basis for determining parking provisions. For example, NBA games are considered to be events that would occur with regularity.

The other important factor that should be considered in planning parking for an arena facility is the maximum seating capacity. In this analysis, two alternative seating capacities were analyzed (17,500 seats and 20,000 seats).

Parking Demand Estimates

The parking demand estimates for the 17,500 and 20,000 seats arena alternatives for evening full capacity attendance are shown in Table B-16. The parking demand for weekday afternoon matinee events are also shown in the Table B-16.

The 17,500 seat arena would need 5,600 parking spaces at the arena site or within a reasonable walking distance from the arena for the weekday evening and weekend events. Similarly, the 20,000 seat arena would need 6,470 parking spaces. Weekday afternoon events would occur about 20 times per year. The average attendance for these afternoon events would be between 10,000 and 12,000 persons. The matinee events would require 2,610 parking spaces.

Due to the family orientation of matinee shows, the events are usually attended by large family groups who arrive together in automobiles or vans. The vehicle

TABLE B-16

ARENA PATRONS MODE OF ARRIVAL AND PARKING DEMAND -- SITE B

Attendance	Bus Users (persons)	Light Rail Users (persons)	CalTrain Users (persons)	Car Users (persons)	Required No. of Parking Spaces
Evening and Weekend Events:					
17,500	175	235	110	16,980	5,660
20,000	200	270	130	19,405	6,470
Weekday Afternoon Event:					
11,000	550	--	--	10,450	2,610

occupancy for automobiles used to travel to such functions is also reported to be higher than average. A vehicle occupancy of 4.0 persons per vehicle is not uncommon. The use of public transportation is very low. However, the use of charter buses to carry school children and senior citizens is extensive. The estimated number of parking spaces required for matinee events is based upon an average attendance of 11,000 persons per event and an average vehicle occupancy of 4.0 persons per vehicle, with five percent of the arrivals attributed to charter buses.

2. Available Parking for Weekdays Evenings and Weekends

The project site would provide 2,225 parking spaces for the exclusive use of arena patrons. The remainder of the parking supply would have to be met by utilizing the available parking facilities within an acceptable walking distance. The inventory of available off-street parking spaces outlined previously showed that 6,316 spaces would be available. In order to determine the percentage utilization of the parking facilities, the walking distance between each parking facility and the project site were measured. The parking facility locations are shown in Figure B-10. The walking distance and the percentage-use graph discussed above was used to estimate the number of spaces that are likely to be used by arena patrons. Table B-17 shows the available parking spaces and the number of spaces that could possibly be used, based upon acceptable walking distances.

It should be noted that this analysis assumes that arena events would be held in the evening (starting at 7:30 PM) or on the weekends, as these parking facilities are fully utilized on weekdays between 7:00 AM and 6:00 PM by the occupants of the buildings they were designed to serve. It will be necessary to obtain permission from the owners of the parking facilities prior to utilization by arena patrons.

Although the parking demand on off-site facilities would increase vehicular and pedestrian traffic in various locations in proximity to the project site, the orientation and disbursed locations of the parking facilities would reduce concentrated (or peak) demand on single facilities. The orientation of the parking facilities would also disperse pedestrian traffic in the commercial downtown area and away from the existing residential neighborhoods.

The use of off-site parking facilities could reduce the impacts at intersections for peak periods because of the dispersed locations of the parking facilities and pedestrian activity. Because of distance, location and the variable speeds of pedestrians, this could further disperse traffic before and after an event.

Available Parking for Weekday Afternoons

The parking demand for weekday afternoon events was estimated to be 2,610 spaces. There will be 2,020 parking spaces available on-site for these events. The 320 spaces under State Route 87 could be reserved for days when the afternoon events are scheduled. The remaining 65 spaces would be made up at the multiple private parking facilities in the project vicinity (refer to Figure B-10).

AVAILABLE PARKING FACILITIES IN PROJECT VICINITY	N	FIGURE B-10

TABLE B-17

PARKING SUPPLY AND ESTIMATED PARKING USAGE

BY ARENA PATRONS -- SITE B

Parking* Facility Number	Description	Total Available Spaces	Assumed Percentage Use	Estimated Parking Spaces Used
1	On-Site	2,020	100%	2,020
2	Parking Area West of Guadalupe River	330	100%	330
3	Surface Lot East of Route 87	150	100%	150
4	Surface Lot East of Route 87	250	100%	250
5	Surface Lot East of Route 87	160	100%	160
6	Surface Lot East of Route 87	170	100%	170
7	Surface Lot East of Route 87	100	80%	80
8	Surface Lot East of Route 87	75	100%	75
9	Pacific Valley Bank Garage	700	70%	490
10	Bonne-Fox Bldg.	873	68%	595
11	Market Street Garage	1,500	60%	900
12	William Wilson Bldg.	715	68%	486
13	Herron Bldg.	483	50%	242
14	Parking Area Under Route 87	320	35%	115
15	Park Center Plaza III	1,200	35%	427
	TOTAL	9,046	72%	6,490

* For Location Refer to Figure 4.

Employee Parking

The parking areas on-site will be reserved for customers. Therefore, arena employees would not be allowed to park on-site. In order to satisfy the employee parking demand, it would be necessary to establish a remote parking area for their use. The employees would be required to park at this location. A comprehensive, long-term plan to provide for employee parking would be implemented to insure the full use of on-site parking for arena patrons.

2. Conclusion

The weekday afternoon shows would require 2,610 spaces. All but 385 spaces could be reserved for these events. The several private parking facilities could satisfy the remaining demand of 385 spaces.

According to the available parking supply analysis, there would be 6,695 parking spaces available for arena patrons for evening and weekend performances. The parking demand analysis showed that there would be a need for 5,660 spaces for a 17,500 seat arena and 6,470 spaces for a 20,000 seat arena. Therefore, there would an excess of about 1,035 available spaces for arena patrons for the 17,500 seat arena and 225 extra spaces for the 20,000 seat arena in the general area. This surplus would ensure that a sufficient parking supply for arena patrons would be provided for evening and weekend events.

The surface parking lots located east of State Route 87 may be replaced by other developments in the future. However, the new developments would each provide its own parking which could be available for arena patrons during evenings and weekends.

In so far as sufficient parking would be available on-site and in the vicinity of the project site to accommodate the demand generated by the proposed arena facility, impacts associated with parking would be considered less than significant.

MITIGATION MEASURES

The parking supply and demand analysis outlined in this section led to the following parking strategies for mitigation measures that are proposed to be included in the proposed project and other mitigation measures that are not included but could reasonably be expected to reduce adverse parking impacts.

- The proposed project would provide 2,025 on-site parking spaces. These spaces should be reserved for arena patrons only. This mitigation, in and by itself would not reduce the impact to a less than significant level. **(Included in Project)**

- A comprehensive, long-term plan would be prepared prior to arena operation to provide parking for arena employees at a location away from the site. A shuttle service could be arranged to carry employees to and from the arena area during peak events. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Arrangements should be made to provide parking areas for charter buses, away from the site during performances. This arrangement should be strictly enforced. This mitigation, in and of itself would not reduce the impact to a less than significant level. **(Not Presently Included in Project)**

- In order to assure the availability of privately-owned parking facilities for arena patrons, arrangements should be made with the owners of these facilities. This mitigation, in conjunction with the proposed on-site parking, would reduce the impact to a less than significant level. **(Included in Project)**

- The parking demand for afternoon events should be monitored closely. If the demand exceeds the supply, arrangements should be made to increase the parking at or near the arena facility. This mitigation, in conjunction with the proposed on-site parking, would reduce the impact to a less than significant level. **(Included in Project)**

- A residential permit parking program should be implemented and strictly enforced to control on-street neighborhood parking. **(Included in Project)**

- Neighborhood impacts in the immediate vicinity of the project site, from the intrusion of arena patron traffic and on-street parking, can be reduced by the use of a temporary barricade system during events at the arena facility. These barricades would exclude arena traffic from these neighborhoods. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Increased traffic in neighborhoods generated by arena patrons could, in some cases, be reduced by a traffic diverter system that would restrict through traffic. This mitigation measure could create secondary impacts, since the diverted traffic would impact other areas. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Included in Project)**

- Implement a roadway signage and/or advertising program to direct arena patrons to major parking facilities in the downtown area. This mitigation in and of itself would not reduce the impact to a less than significant level. **(Not Presently Included in Project)**

D. NEIGHBORHOOD AND PEDESTRIAN ANALYSIS

EXISTING SETTING

The proposed project is anticipated to have approximately 65 percent of its parking needs provided at parking facilities located away from the arena facility. This arrangement will require the arena patrons to walk from remotely located garages to the proposed arena. Consequently, it is necessary to assess existing facilities available for pedestrians between the parking areas and the proposed arena.

1. <u>Existing Pedestrian Facilities</u>

   There are approximately 12 parking facilities that will serve the arena patrons. These are located east and south of the proposed arena site. Most of the pedestrian traffic would occur between the arena and these facilities. However, some pedestrian traffic is expected to occur west of the arena site along Julian Street.

An inventory of the existing pedestrian facilities was conducted along the perceived pedestrian paths between the parking areas and the arena site. The inventoried facilities included sidewalk widths, pedestrian crosswalks at intersections, traffic regulations, signs and signal locations with and without pedestrian signal heads. The sidewalk inventory included bus stops, handicap ramps and the location of sidewalk furniture and other impediments that might restrict pedestrian flow. Also, the intersections with heavy traffic volumes and significant pedestrian crossing conflicts were observed.

The purpose of this inventory was to assess the opportunities and constraints offered by the existing transportation system for pedestrian access and circulation between the major parking areas and the proposed arena. The primary pedestrian paths serving the project site are shown in Figure B-11.

2. Sidewalk Analysis

The major pedestrian routes leading to the proposed arena are perceived to be along Julian/St. James Streets, San Pedro Street and Notre Dame Street. The pedestrians from the four surface parking lots north of Julian Street would use Bassett Street as their primary route of access to the arena. It should be noted that, at present, there are no sidewalks along Bassett Street.

The sidewalks on the north and south sides of Julian/St. James Streets are about 10-feet wide. These narrow to approximately six feet across the bridge over the Guadalupe River. Sidewalk widths along San Pedro Street, Notre Dame Street and North Almaden Boulevard vary between six to 14 feet.

It is anticipated that the pedestrians from the parking facilities along San Pedro Street, Notre Dame Street and North Almaden Boulevard would use the respective north-south street to reach Julian Street, and then use Julian street to reach the project site. The north-south streets would not have heavy pedestrian flows because only one of the parking garages is located on each different street. These north-south roadways offer sufficient sidewalk capacity for the demand generated by these individual garages. However, Julian Street would have heavy pedestrian traffic. This roadway would collect the flows from the north-south roadways and would provide access to the arena site through the Julian Street crossing under State Route 87.

The pedestrian flow would be in the form of platoons. Platoon flow is defined as the grouping or bunching of pedestrians because of internal or external impedances. These groups would be characterized by increasing behavioral consistencies manifested in the adoption of a prevalent group speed and positioning arrangement.

Recent research (Davis and Braaksina, 1980) has indicated that the level of service occurring in platoons is generally about one level of service lower than the level indicated, based on average flow criteria. In platoon flow, it would seem likely that behavioral norm will evolve whereby pedestrians may be willing to accept smaller buffer zones at disproportionately higher speeds than indicated by the level of service criteria for average conditions.

Based on the recent research, it is estimated that for LOS D, a pedestrian flow of about 30 pedestrians per minute per foot width of sidewalk can be accomodated. Assuming that the 10 foot sidewalk will only have an eight foot effective width,

PROJECT SITE PRIMARY PEDESTRIAN PATHS

FIGURE B-11

each side would be able to accommodate 240 pedestrians per minute, or 480 pedestrians on both sides of the roadway.

According to the surveys conducted for the arrival patterns for special events such as basketball and other entertainment, the pattern arrive at different rates per ten minute period. The largest percentage reported to arrive for entertainment events within a ten minute period was 24 percent, occurring 20 to 30 minutes before the start of the event.

A pedestrian flow that falls below a LOS D would constitute a significant impact.

3. Pedestrian Crosswalk Analysis

Almost all of the intersections along the perceived paths of the pedestrians between the parking areas and the proposed arena have striped pedestrian crosswalks at the intersections to provide safe and convenient street crossings. The section of Julian Street in the vicinity of State Route 87 is currently under construction. Once this construction is completed, pedestrian crosswalks will be striped at the new intersections.

A detailed inventory was conducted to obtain information regarding the existing traffic signal locations, pedestrian signal head locations, pedestrian crosswalks and availability of handicap ramps at the critical intersections along the perceived pedestrian paths of arena patrons. This information was used to determine the adequacy of pedestrian movements along Julian/St. James Street.

4. On-Street Neighborhood Parking

The neighborhood on-street parking inventory and usage survey, discussed in Section C, Parking Analysis, of this report, was conducted to understand the existing parking supply and demand situation. It was not conducted to condone the use of neighborhood street for parking by arena patrons. The results of the existing parking survey indicate that there are available parking spaces in the neighborhoods surrounding the project site. Therefore, arena patrons would attempt to park on the neighborhood streets since these free spaces are conveniently located.

When a activity center, such as an arena facility, is introduced within a reasonable walking distance of a residential neighborhood, a certain number of persons will always attempt to park their vehicles in the neighborhoods to avoid parking costs or traffic congestion. This will occur regardless of how much parking is provided at the activity center.

POTENTIALLY SIGNIFICANT IMPACTS

1. Sidewalk Analysis

For a 20,000 patrons capacity crowd, it was estimated that the largest average flow of pedestrians to the site would be 500 pedestrians. Howver, there are three different ways to approach the project site on foot. These are Bassett Street, Julian Street and the North Almaden Boulevard extension under State Route 87. It is estimated that about 16 percent of the pedestrians would use Bassett Street and about 13 percent would use the Almaden Boulevard extension. Therefore, the

remaining 70 percent would approach the arena from the east side on Julian Street. Out of 500 total ten minute arrivals, 70 percent (or 350 pedestrians) will be using Julian Street. This demand of 350 pedestrians, when compared with the available capacity of 480 pedestrians on Julian Street, would produce a LOS D (see Figure B-12). However, during peak events, the pedestrian LOS could deteriorate to a LOS E or F for temporary periods of time (approximately ten to 20 minutes) on major access walkways.

The diversity and orientation of off-site parking structures could contribute to increased pedestrian traffic, especially during peak periods and after events. These locations could also tend to disperse platoon flow and timing to reduce the number of vehicles exiting from the parking structures onto the local roadways.

2. Pedestrian Crosswalk Analysis

Traffic Signals

The existing signals along Julian Street, between Market Street and North Almaden Boulevard, will require new signal phasing and timing plans to accommodate future automobile and pedestrian traffic generated by the arena patrons. A signal timing analysis conducted for the signalized intersections showed that a 90 second cycle would be necessary. Due to heavy pedestrian crossing demands, the timing plans would require a longer pedestrian time for the east-west movement. As most of the automobile traffic would also be in the east-west direction, the movement could be favored as opposed to the north-southdirection. Also, a new traffic signal with pedestrian heads would be required at the Julian and Autumn Street intersection. If the existing signal controllers are not capable of utilizing different timing plans at different times of the day, a new master controller will be required. These signals will require interconnection to provide signal synchronization.

The potential peak flow of pedestrians may also affect vehicluar flow through the intersections. This would only occur at the intersections in close proximity to the project site and for peak periods.

During peak events, the impact of pedestrian and vehicular traffic at intersections on the immediate vicinity of the project site could contribute to a temporary significant impact.

Pedestrian Signal Heads

The existing signals along Julian Street between Market and Notre Dame Streets are equiped with pedestrian signal heads. The new controllers at the State Route 87 and Julian Street interchange ramp intersections will require pedestrian heads.

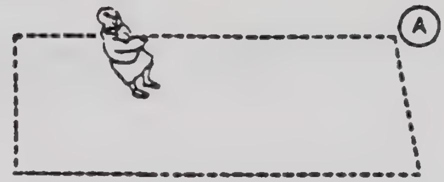
Crosswalks

All of the intersections along Julian Street, between Market Street and the proposed arena site, have crosswalks. The new intersections of the State Route 87 ramps with Julian Street will have crosswalks after construction is completed.

LEVEL OF SERVICE A

Pedestrian Space: ≥ 130 sq ft/ped   Flow Rate: ≤ 2 ped/min/ft

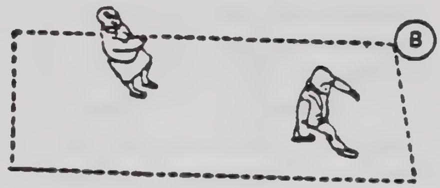
At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.



LEVEL OF SERVICE B

Pedestrian Space: ≥ 40 sq ft/ped   Flow Rate: ≤ 7 ped/min/ft

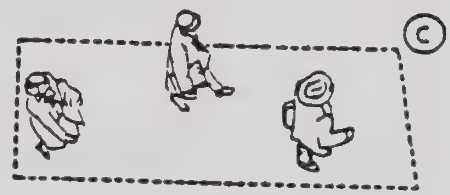
At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



LEVEL OF SERVICE C

Pedestrian Space: ≥ 24 sq ft/ped   Flow Rate: ≤ 10 ped/min/ft

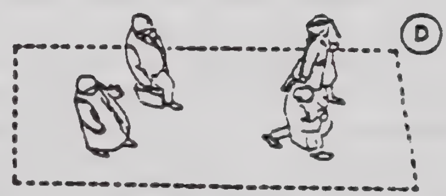
At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.



LEVEL OF SERVICE D

Pedestrian Space: ≥ 15 sq ft/ped   Flow Rate: ≤ 15 ped/min/ft

At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



LEVEL OF SERVICE E

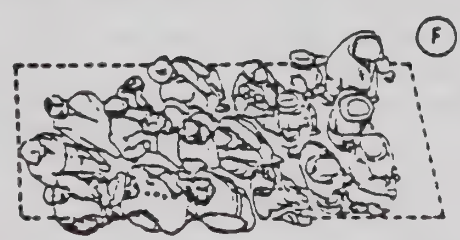
Pedestrian Space: ≥ 6 sq ft/ped   Flow Rate: ≤ 25 ped/min/ft

At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.

LEVEL OF SERVICE F

Pedestrian Space: ≤ 6 sq ft/ped   Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.



HIGHWAY CAPACITY MANUAL (1985)

ILLUSTRATION OF WALKWAY LEVEL OF SERVICE   FIGURE B-12

Handicap Ramps

All of the existing intersections along Julian Street, between Market and Notre Dame Streets, have ramps to serve handicapped persons.

3. Street Lighting

Currently, street lighting exists on all roadways expected to be used by pedestrians walking between the arena and the parking facilities. However, there are certain areas where higher levels of illumination would be required. Specifically, the section of Julian Street, between Market and Montgomery Streets, would require higher levels of illumination than what is currently provided. The plaza area in front of the east and west side of the arena building should be well-illuminated with floodlights, in order to provide a safe environment for pedestrians.

This is seen as a less than significant impact.

4. Neighborhood Parking

On-Street Neighborhood Parking

One of the more effective ways to solve the problem of arena patrons parking on neighborhood streets would be to plan, design and implement a residential permit parking policy for selected areas in the vicinity of the project site. Implementation of this plan could only occur if the neighborhood residents request such a program. Permit parking is relatively simple to implement and enforce. Residents would be issued parking permits for each registered vehile plus a visitor parking permit for their private use. The roadways would be signed to allow parking only for vehicles displaying permits. Vehicles without permits would be fined for each violation. Very strict enforcement is a key element in making this program a success. This would help reduce pedestrian impacts on neighborhoods and reduce the cumulative significant effects in the immediate neighborhoods.

Off-Street Neighborhood Parking

In the vicinity of the project site, there exists a few private surface parking lots on The Alameda, west of Stockton Street. These lots could potentially provide for an estimated 200 automobiles. Although this parking supply was not assumed in this study, the lots were considered in the analysis of potential neighborhood impacts by an arena development on this project site. This potential parking supply could generate up to an estimated 200 trips through the roadways serving these lots during the arena peak hour(s) of traffic activity.

5. Neighborhood Traffic Impacts

The automobile traffic to and from the arena is expected to primarily use the major roadway system. However, some arena patrons would infiltrate the neighborhood roadways to circumvent congestion on the major roadways or to park on the neighborhood streets or in a neighborhood parking lot. This added traffic will cause inconvenience and annoyance to the residents.

As demonstrated in the parking demand analysis, all of the major parking facilities are located southerly of the project site in the downtown commercial area. Although there are neighborhoods located between the project site and the parking facilities, the larger residential areas are situated westerly of the project site. The expected pedestrian traffic generated from a peak arena event would utilize these primary parking facilities and arterial roadways for vehicular and pedestrian access. The highest volume of pedestrian traffic would utilize the downtown parking facilities which are located away from the residential neighborhoods. The parking facilities will also contribute to disbursed parking, pedsestrian and vehicular traffic. Although this in itself will not reduce impacts, it may provide some relief in the way of traffic and pedestrians impact an intersection, especially after an event.

It is concluded that, at peak event s during the year, the arena facility would have a significant, unavoidable impact on the surrounding neighborhoods.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse pedestrian and neighborhood impacts identified in this analysis.

1. <u>Neighborhood Parking Impacts</u>

   It is strongly recommended that if this site is selected, a residential permit parking plan should be implemented if the residents request such a measure. **(Included in Project)**

2. <u>Off-Street Neighborhood Parking</u>

   The impact of neighborhood parking and the resulting traffic impact can be resolved in two ways. The first method would be to restrict such off-street parking in the residential neighborhoods. The second way would be to erect temporary barricades during arena events to eliminate arena traffic from neighborhood roadways. **(Included in Project)**

3. <u>Neighborhood Traffic</u>

   To alleviate the neighborhood roadway impacts from the proposed arena site, it is recommended that a committment be made towards planning, designing and implementing a Neighborhood Traffic Control Program. This program should be implemented only after the arena is in operation and the neighborhoods have been closely monitored to ascertain the amount of infringement of arena traffic in the local residential roadways in the vicinity of the project site. A similar study is being undertaken by the Traffic Operations Division of the City of San Jose Public Works Department at the request of the Shasta/Hanchett Park Neighborhood Association. A number of recommendations are being prepared for discussions with the neighborhood group. The implementation of these programs would be subject to separate environmental review and conformance to the City of San Jose General Plan.

   The Neighborhood Traffic Control Program, once implemented, is expected to minimize the cut-through commuter traffic. After the opening of the area, and

the City determines that the arena patrons are utilizing the residential roadways, temporary barricades could be erected to eliminate this problem during arena operation. **(Not Presently Included in Project)**

4. Pedestrian Access

The following improvements would need to be implemented to mitigate potential pedestrian impacts.

- The proposed extension of North Almaden Boulevard under State Route 87 should be designed with sidewalks to provide a pedestrian connection from east of State Route 87 to the arena on the west side. **(Included in Project)**

- The proposed area in front of the arena facility on the northerly side of Julian Street should be connected with the sidewalk on Julian Street to provide direct access between the sidewalk and the plaza. **(Included in Project)**

- The existing Old Julian Street bridge should be converted into a pedestrian bridge to provide access to the arena from the west side. **(Included in Project)**

- The Bassett Street section between San Pedro Street and the arena facility should provide 10 foot sidewalks. **(Not Presently Included in Project)**

- The existing traffic signals along Julian Street, between Market Street and North Almaden Boulevard, will require new signal phasing and timing plans for accommodating future automobile and pedestrian traffic. **(Included in Project)**

- Street lighting should be improved for the section of Julian Street between Market and Montgomery Streets. The area in front of the arena facility and the east and west sides of the building should also be illuminated with floodlights to provide a safe environment for pedestrians. **(Included in Project)**

- Provide traffic control police officers for pedestrian and vehicular control at key intersections during peak hours of events. **(Included in Project)**

- Implement a roadway signing and/or advertising program to direct arena patrons to major parking facilities in the downtown area. **(Not Presently Included in Project)**

E. AIR QUALITY AND CLIMATE

EXISTING SETTING

The air quality of a given area is not only dependent upon the amount of air pollutants emitted locally or within the air basin, but also is directly related to the weather patterns of the region. The wind speed and direction, the temperature profile of the atmosphere and the amount of humidity and sunlight determine the fate of the emitted pollutants each day, and determine the resulting concentrations of air pollutants defining "air quality."

1. Regional Climate

The San Francisco Bay Area climate is a mediterranean type, characterized by mild and rainy winters and warm and nearly-dry summers. There is a high percentage of sunshine, especially in the summertime after the typical morning fog burns off. The temperature, humidity, wind and precipitation throughout the year depend entirely upon the movements of marine air, the location and strength of the dominant Pacific high-pressure system and the coastal temperature gradient.

During the summer months, the Pacific high typically sits near the California coast, pushing oncoming eastbound storm systems to the north through the Northwest United States and Canada. Subsidence of warm air aloft, associated with this system, creates the frequent summer atmospheric temperature inversion and stagnated conditions. The persistent reversal of the normal atmospheric temperature lapse rate (change with temperature) may be several hundred to several thousand feet thick, effectively trapping pollutants emitted at ground level. Winds during the summer months are generally light, except for late afternoon, on-shore flow from differential heating between the cool ocean and the warm land mass. Average temperatures increase as distance from the Golden Gate Bridge increases. Average maximum temperatures during the summer months are near 80 degrees Farenheit in the South Bay Area, and average evening minimums are near 50 degrees Farenheit.

During the winter months, the Pacific high pressure system moves southward, allowing ocean-formed storms to move through the region. With the dominance of the unstable low-pressure systems during the winter, and less sunshine, conditions favoring smog formation are at a minimum. However, radiation cooling during the evening hours sometimes creates thin inversions, concentrating carbon monoxide emissions at ground level. Average maximum winter temperatures in Santa Clara County are approximately 60 degrees Farenheit, and average evening lows are approximately 40 degrees Farenheit.

Lying in the rain shadow of the Santa Cruz Mountains, the South Bay Area receives only two-thirds of the precipitation which falls upon San Francisco, and one-quarter of that falling in the coastal mountains. Very little rain falls in the months of May through October (usually near 0.5 inches). The majority of the rainfall comes in the months of December through February (approximately 3.5 inches per month in normal rainfall years). The average annual rainfall in the South Bay Area is 13 to 15 inches.

2. Wind Characteristics in the South Bay Area

Wind in the South Bay Area is predominately from the northwest, as shown in the summary of wind data for downtown San Jose (Table B-18). The northwesterly winds are a result of ocean-driven flow coming through the Golden Gate Bridge and toward the South Bay. During mid-winter months, southeasterly winds are present nearly 40 percent of the time, due to frequent low-pressure storm fronts and their characteristic counter-clockwise flow. Calm conditions occur nearly 13 percent of the time during the winter months, but only five-percent during the summer months.

Average wind speeds in the downtown San Jose area are less than five miles per hour on an annual average basis. The highest wind speeds occur during the late

TABLE B-18

WIND DATA FOR DOWNTOWN SAN JOSE

	Direction	% of Time	Mean Speed (mph)
Annual Distribution			
	NE	3.1	1.5
	E	0.5	1.4
	SE	16.9	2.7
	S	19.2	4.2
	SW	6.8	2.2
	W	1.1	2.5
	NW	40.7	4.3
	N	2.9	2.4
	Calm	8.9	---
		100	3.3
Winter Distribution			
	NE	2.9	1.5
	E	0.5	1.4
	SE	20.8	2.6
	S	23.5	4.4
	SW	7.9	1.9
	W	1.5	2.4
	NW	28.1	3.9
	N	2.1	2.6
	Calm	12.7	---
		100	3.0
Summer Distribution			
	NE	3.0	1.5
	E	0.4	1.5
	SE	11.4	3.0
	S	17.4	4.3
	SW	5.4	2.6
	W	0.6	2.9
	NW	52.8	4.6
	N	3.9	2.4
	Calm	5.1	---
		100	3.8

afternoon on-shore cooling in the summer months, and during winter storms. During storm periods, winds frequently gust at 20 to 30 miles per hour.

3. Ambient Air Quality

Air quality near the project site is subject to the same problems experienced by most of the San Francisco Bay Area, and particularly the southerly portion. Emissions from millions of vehicle-miles of travel each day often are not mixed and diluted, but rather trapped near ground level by a temperature inversion. Prevailing air currents generally sweep from the mouth of the Bay towards the south, picking up and concentrating pollutants in the basin around San Jose and the Almaden Valley. A combination of emissions in the South Bay, the transport of pollutants from other areas and the natural mountain barriers (the Diablo Range to the east and the Santa Cruz Range to the west) produce high concentrations which sometimes exceed ambient air quality limits established by the Bay Area Air Quality Management District (BAAQMD). The most recent air quality data from the nearest BAAQMD monitoring station on Fourth Street in San Jose, and the ambient standards presently in effect, are tabulated in Table B-19.

Ozone, the primary photochemical oxidant "smog" component, is produced by complex reactions of hydrocarbons and nitrogen oxides (NO_X) in the atmosphere. Daily ozone concentrations are heavily dependent upon the weather, and thus vary substantially from year to year. Since the adverse atmospheric conditions in 1978, when 12 exceedances were recorded in San Jose, high ozone days have been significantly lower. However, 1983 and 1984 were unusually warm and stratified ozone seasons, with nine and seven exceedances, respectively. The 1985 and 1986 summer weather was cooler and had a more-normal ventilation pattern, bringing ozone exceedances back down. The three year Expected Annual Exceedance value (average of the last three years) is now 3.3 days per year.

Another problem pollutant in the South Bay Area is carbon monoxide which is heavily-dependent upon both vehicle emissions and weather. High CO concentrations in the South Bay occur mostly under low wind conditions during winter evenings. Exceedances of the nine-parts per million (ppm), eight-hour ambient standard increased to 17 during 1985 in San Jose (the highest number of exceedances since 1979), but dropped again in 1986, to four incidents. Both CO and ozone have been reduced significantly by improved emission controls on new automobiles in the past decade.

Total suspended particulates, produced by vehicles, heavy industry and soil-moving activities, dropped significantly in 1983, but heavy construction in downtown San Jose has produced high concentrations since 1984. The ambient standard for 24 hour sampling has been exceeded a significant number of the days tested in downtown San Jose for the past three years. These readings are not considered representative of the general San Jose exposure, but they are probably fairly representative of the nearby project area.

Sulfur dioxide is primarily associated with chemical and refining industries, and has never approached the ambient standard in the San Jose area, nor have sulfur dioxide standards been exceeded anywhere in the District since 1976.

TABLE B-19

BAAQMD DATA (FOURTH STREET STATION)

POLLUTANT	1984	1985	1986	Standards	Measurement Units
OZONE					
Maximum	16	14	14	12(1)	pphm, 1-hr ave
Exceedances	7	2	1	1	days per year
3-year average	5.3	6.0	3.3	1	Expected Annual Exceedances
CARBON MONOXIDE					
Maximum 8-hour	20	21	11	9(2)	ppm, 8-hr ave
8-hour exceedances	5	17	4	1	days per year
NITROGEN DIOXIDE					
Maximum	18	19	16	25(3)	pphm 1-hr ave
Exceedances	0	0	0	1	days per year
TOTAL SUSPENDED PARTICULATES					
Annual mean	79	90	(6)	60(4)	annual geomet. mean
Daily exceedances	6	19	24	1(5)	% of days above 150 ug/m^3

NOTES:

(1) Federal standard; State standard is 10 pphm.
(2) Federal and State ambient standard; State standard is also 20 pphm for 1 hour.
(3) State standard; Federal standard is 5 pphm annual average.
(4) State standard; Federal standard is 75 ug/m^3
(5) Federal standard; State standard is 100 ug/m^3, measured as thoracic particles (small diameter).
(6) Not published for 1986.

Source: BAAQMD monitoring data -- 4th Street station, San Jose.

Nitrogen oxides are produced heavily by vehicles and high-temperature industrial operations, but as yet have not posed serious problems in the region. However, the South Bay Area often has the highest NO_x concentrations in the District.

Because there are exceedances of some ambient standards in the Bay Area, the District has been designated a Non-Attainment area by the United States Environmental Protection Agency (EPA) for CO, ozone and total suspended particulates. All significant sources in the District must share responsibility for each basin exceedance, including those locations where air quality is good.

POTENTIALLY SIGNIFICANT IMPACTS

Vehicle-trips carrying patrons to and from events at the proposed arena facility are the primary sources of emissions associated with the implementation of the project. The trip profile associated with the arena facility is an incoming group of vehicles (anticipated to be one vehicle for every three arena patrons) in the 90 minutes prior to the event starting time, and the reverse trip pattern in the 60 minutes following an event. This profile is essentially superimposed upon the existing commute-based traffic pattern. The peak arrival traffic for a normal weekday evening event is expected to folow the PM peak commute period, but not coincide with it.

Other types of air quality impacts associated with the proposed project, such as stationary sources of pollutants include heating system emissions, which represent a minimal contribution. Potential dust and particulates generated during site preparation and grading may be controlled by routine application of water and/or road oil.

Particulates generated by roadway resuspension are relatively small amounts and vary near the roadway. Although it is possible to estimate a range of values for these contributions, the estimates would have little validity except under specific and controlled conditions not found in actual practice.

1. Sensitive Receptor Locations

Sensitive receptors for potential air quality impacts of the proposed project are primarily the older residential neighborhoods situated northeasterly of the Julian Street/Guadalupe Parkway intersection and southwesterly of Stockton Street. A few scattered residential locations in the area north of the project site will remain even after completion of the proposed arena facility. Representative worst-case receptor locations were selected at the following locations (see Figure B-13):

- Fox Avenue and San Pedro Street;
- Rhoades Avenue and Julian Street; and
- Montgomery and Julian Streets.

These receptors were selected as a result of their being sensitive and/or representative of the project area as a whole. The extent to which these locations would be affected by the proposed project is evaluated in the following sections. Other receptor locations in the project area would experience similar or lesser impacts.

SOURCE: ENVIRONMENTAL CONSULTING SERVICES(1987)

AIR QUALITY RECEPTOR LOCATIONS

FIGURE B-13

2. Data and Methodology

Vehicles are responsible for the emission of a number of pollutants: carbon monoxide (CO), hydrocarbons, particulates, NO_x, and others. The most widely-used method of evaluating the potential impact of project-related vehicles is the modeling of the concentration of CO at nearby sensitive receptor locations.

Vehicular CO emissions are directly related to the number of vehicle trips and the average vehicle emission rate. Newer vehicles have lower emission rates than older vehicles because of better emission controls. In addition, average emissions per mile decrease as average speeds increase. But after the pollutants are emitted, atmospheric conditions control pollutant mixing, dispersion and the ultimate concentrations achieved. These interrelated factors are considered in a simplified way by roadside CO dispersion modeling.

The CALINE 3, multiple line-source model used for this study was developed by the California Department of Transportation, based upon standard Gaussian diffusion relationships (Turner, 1970). In basic terms, CALINE takes emissions from major arterials in the area, under stagnated atmospheric conditions and low wind speed, and sums the contributions of major roadways at selected receptors for various wind directions.

To evaluate the potential air quality impacts, six traffic conditions were evaluated and compared, based upon the traffic study prepared for this project by Barton-Aschman Associates, Incorporated (1987).

- Existing 1987 traffic;
- Year 1991 Base traffic (without project);
- Year 1991 traffic (with 17,500-patrons attending);
- Year 1991 traffic (with 20,000-patrons attending);
- Year 2000 traffic (with 17,500-patrons attending); and
- Year 2000 traffic (with 20,000-patrons attending).

3. Impact Analyses

Carbon monoxide concentrations at the three receptors were modeled during the PM peak hour for each of the traffic conditions and for the eight wind conditions. The eight wind conditions provide representative scenarios for the yearly conditions in and around the project area. Emissions are accumulated by CALINE from each of 20 roadway segments ("links") in the project area defined by the roadways listed in Table B-20. Carbon Monoxide concentrations for the wind directions giving the highest values are also listed in Table B-20.

Table B-20 shows one hour average concentrations. Traffic associated with the proposed project will not increase air quality concentrations at residential receptors in the vicinity of the project site to a significant level. This is because project traffic volumes will be distributed on a number of access roadways in the area, while average emissions per vehicle continue to be reduced, as newer vehicles with superior emission controls replace older vehicles. In addition, the completion of the Guadalupe Freeway connection is expected to divert some local traffic and relieve associated congestion, which will reduce emissions and CO concentrations near local arterials, particularly near Receptor 1.

Background concentrations are the combined result of vehicular emissions from all roadways in the project area. This was based upon BAAQMD Assessment

TABLE B-20

PEAK HOUR CARBON MONOXIDE MODELING (ppm)

CASE	1	2	3
1. Existing - 1987	1.3	0.4	0.8
2. Base Case - 1991	0.6	0.5	1.1
3. Year 1991 - 17,500	0.6	0.5	1.2
4. Year 1991 - 20,000	0.6	0.5	1.2
5. Year 2000 - 17,500	0.5	0.7	0.8
6. Year 2000 - 20,000	0.5	0.7	0.8

Local Background Concentration: 12 ppm

Ambient Standard: 20 ppm

Table B-21

EMISSIONS COMPARISONS (1995 -- TONS PER DAY)

	CO	NMHC	NOx	PART
Project	0.18	.015	.019	.004
BAAQM District				
Vehicle	1430	142	183	351
Total	2160	532	486	708
Santa Clara County				
Vehicle	24%	12%	14%	12%
Total	26%	24%	18%	23%

Guidelines. The total CO concentrations under stagnated atmospheric conditions are the sum of local background plus the modeled concentrations, which would not appear to cause the State ambient standards to be exceeded, with or without the proposed project.

However, some simplifications are made by the modeling procedure, one of which is to assume a constant lower-speed traffic flow during PM peak hour conditions, rather than stop-and-go cycles. At some congested intersections, emissions could be higher than modeled. In addition, under severe atmospheric stagnation which occurs a few times a year (i.e., near-zero wind speeds and a very low atmospheric inversion, which cannot be modeled in a straight-forward fashion), ambient standards could be exceeded. To the extent that the proposed project events coincide with these stagnation periods, the project would contribute to increased local CO concentrations at a time when ambient standards are exceeded throughout the South Bay region.

Therefore, although there could be events and conditions which could exceed emission standards and would be significant, the cumulative impact of emissions on air quality from the proposed project would be less than significant.

4. Total Project Emissions

Another way of assessing potential impacts is to estimate the total daily project-related vehicular emissions. The proposed arena facility will not have a consistent "daily" contribution, but an event could occur a few times per week. Total emissions are computed by considering emissions associated with the 6,500 project trips with an average trip length of 10.6 miles. Table B-21 is a comparison of total emissions for the four main pollutants.

Emissions are converted to tons per day to relate them to the estimated total District vehicular emissions under Year-1995 conditions. Santa Clara County emissions, as a percent of District emissions, also are tabulated for comparison (ABAG, 1982).

The project emissions would have a nonsignificant impact on the environment.

5. Relationship of Project to District Air Quality Plan

The 1982 Bay Area Air Quality Plan presents the policies and methods adopted for meeting the mandated National Ambient Air Quality Standards in the San Francisco Bay Area. The recommended policies in the plan which would be most relevant to reviewing agencies and individual projects are designated "Transportation Control Measures," acknowledging the primary role vehicles play in the air quality control problems and their solutions.

6. Parking-Related Air Quality Impacts

In addition to the emissions generated by the arena patrons driving to and from the proposed site, short-term emission incidents would be produced while the vehicles are entering and leaving the parking lots and/or garages, particularly while leaving. After an event, patrons leave essentially at the same time, with many vehicles idling while in queue to exit a parking lot or garage. This section discusses concentrations adjacent to the proposed parking areas and inside of the proposed parking garages, following an event.

Carbon Monoxide Concentrations Inside a Parking Garage

Idling motor vehicles within enclosed areas produce the most serious human exposures to CO. Examples include heavily-traveled tunnels and relatively-closed parking garages. Even so, if traffic is evenly distributed to reduce the number of vehicles operating at the same time, high concentrations do not build up. Parking garages dedicated to scheduled events such as those proposed for this project, as opposed to more evenly distributed retail or commercial uses, are the most severe parking exposures.

For the proposed three to four level, 1,320 vehicle parking garage, the following assumptions have been used:

- Size of interior garage level: 300 feet by 300 feet by 10 feet;
- Vehicles per level: 330;
- Vehicle time spent idling in garage: 15 minutes; and
- Air flow: ten meters per minute.

An interior location at the "downwind" side of the garage would experience a CO concentration of 300 ppm, while the upwind side of the garage would experience basically ambient concentrations. For faster air flow through the garage, fewer vehicles operating at one time or shorter periods of idling (vehicles leaving the garage more quickly), the concentration would be proportionately lower.

The recommended one hour exposure to CO is 20 ppm, to prevent elevated CO levels in the blood, which can cause temporary deficiencies in the ability to do physical and mental tasks, and may cause headaches. Although this type of exposure is not unique to the proposed parking garage for this project, the exposure should not be taken lightly even for infrequent exposure (for comparison purposes, cigarette smokers inhale 400 to 500 ppm concentrations of CO).

Open-architecture garage design promoting both natural convection and wind-driven ventilation would be a minimum recommendation. Additionally, patrons should use caution and closed windows in extended garage idling situations.

Parking Lot Idling Emissions

Assuming poor atmospheric conditions (one-meter per second wind speed, a full lot of vehiles idling at once), the proposed surface parking area on the west side of Julian Street would generate approximately 6.4 ppm concentation of CO. When combined with the ambient background level of 12.0 ppm, the ambient standard of 20 ppm would not be exceeded. Accordingly, this is a less than significant impact.

Horizon 2000 General Plan

The City's General Plan identifies the goal to maintain acceptable levels of air quality for the residents of San Jose. This project would conform to the goals and policies for air quality indentified in the General Plan.

MITIGATION MEASURES

The following are mitigation measures included in the project and other measures that are not included but could reasonably be expected to reduce the adverse impacts associated with air quality identified in this analysis.

In practice, the effectiveness of any mitigation measure is directly proportional to reductions in traffic flow congestion and to the number of drivers that are willing to give up single-occupant travel. Actual reductions in emissions vary between one to 15 percent, depending upon the measure. Clearly, the effectiveness of transportation alternatives is improved as the alternatives are made more attractive to motorists, relative to travel in single-occupant vehicles.

Mitigation thresholds for potential air quality impacts are described and classified by type of project in the BAAQMD Assessment Guidelines (1985). As stated, the proposed San Jose Arena project is below the Category C mitigation threshold for planning actions affecting any facility generating more 5,000 vehicles.

Measures relevant to the proposed arena facility, taken from the full-range of potential air quality mitigation measures described in detail in Section IX of the new BAAQMD Guidelines (1985), are summarized in the following paragraphs. The recommended mitigations should be given serious consideration for implementation by the City of San Jose prior to the commencement of construction of the proposed project. The recommended transportation-related mitigations should be considered by both the City of San Jose and Santa Clara County transportation planning agencies.

- Include bicycle and pedestrian pathways, safe bicycle routes and secure bicycle storage facilities at the proposed arena facility. **(Not Presently Included in Project)**

- Additional transit stops, bus turn-outs and shelters, passenger amenities and special bus and carpool lanes should be provided wherever possible. **(Not Presently Included in Project)**

- Implement traffic engineering changes which improve traffic flow, such as more lanes, turning lanes and signalization of intersections, as needed. An average vehicle speed of five-miles per hour can achieve a 20-percent reduction in CO and hyrocarbon emissions. **(Not Presently Included in Project)**

- Achieve maximum efficiency through a properly designed site plan (for circulation purposes). **(Included in Project)**

F. COMMUNITY NOISE

EXISTING SETTING

1. Acoustical Setting

Existing Noise Levels

To determine the existing noise environment, continuous noise level recordings were taken at two representative locations bordering the site, and at seven representative locations in the surrounding area (see Figure B-14). The measurement locations and recorded data are present in Table B-22. The measurements were made on February 3 and 4, May 19 and 27, and June 2 and 12, 1987. The recordings were made with a Gen Rad Company Community Noise Analyzer, which yielded a series of descriptors of the sound levels versus time. The descriptors shown in the table are the L_{10}, L_{50} and L_{90} (i.e., those levels that are exceeded ten percent, 50 percent and 90 percent of the time). Also shown are the maximum and minimum levels, and the continuous equivalent level (L_{eq}). In addition to these measured levels, the day-night level (L_{dn}, and the Community Noise Equivalent Level (CNEL), as specified by the San Jose Noise Element and Santa Clara County Airport Land Use Commission standards, respectively, are shown for five measurement locations. The L_{dn} and CNEL are 24 hour noise descriptors used to define community noise levels and are considered to be approximately equivalent. Weighting factors are applied in the formula for the evening and nighttime periods to account for an increased sensitivity to noise during these hours.

The measurements at the two on-site locations (Julian Street and Bassett Street), and at the Coleman Avenue, West Santa Clara Street, and Stockton Street locations were made for a total period of three-hours at each location, with two hours measured in the daytime period and one-hour measured in the evening or nighttime period. The Martin Avenue and Hanchett Street locations were measured for one hour each in the evening period, when weekday arena traffic would be most likely to impact residential areas in the project vicinity.

The existing noise environment at the project site is controlled by roadway traffic, Southern Pacific Railroad train passbys and aircraft approaching the San Jose International Airport. Roadway traffic noise from Julian Street impacts the southern portion of the site. Railroad noise impacts are due to train sources on the Milpitas line tracks at the northern edge of the site, which carry three freight trains per day. Aircraft landing at the International Airport follow a flight line directly west of the site, which produce noise levels of 65 to 67 dB CNEL.

In surrounding areas, Southern Pacific Railroad train noise also affects the area east of Stockton Street, where the main line tracks provide service for passenger, commute, and freight trains. Aircraft noise is also prevalent in the surrounding area with noise levels of 60 to 70 dB CNEL commonly occurring (San Jose International Airport, 1986). Roadway traffic noise impacts occur along the major thoroughfares: The Alameda/West Santa Clara Street, Julian Street, Stockton Street and Coleman Avenue.

SOURCE: EDWARD L. PACK ASSOCIATES(1987)

NOISE MEASUREMENT LOCATIONS

FIGURE B-14

TABLE B-22

NOISE LEVEL MEASURES AT THE PROPOSED

PROJECT SITE AND ENVIRONS

Location and Time Period	Sound Levels, dBA					
38 ft. from the C_L of Stockton Avenue, 500 ft. North of The Alameda:	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}
3:00 - 4:00 pm	87	67	60	64	47	64
4:00 - 5:00 pm	94*	68	62	54	49	65
9:00 - 10:00 pm	80	69	60	54	50	65
The L_{dn}/CNEL is 69 dB						
50 ft. from the C_L of the SPRR Tracks, Near San Pedro Street:						
3:00 - 4:00 pm	77	59	55	53	49	57
4:00 - 5:00 pm	75	59	55	53	48	57
5:00 - 6:00 pm	84**	63	55	53	49	63
The L_{dn} is 65 dB						
40 ft. from the C_L of Julian Street, West of the Guadalupe River:						
5:00 - 6:00 pm	91	73	65	59	51	70
6:00 - 7:00 pm	89	74	67	59	49	72
8:00 - 9:00 pm	94*	66	54	48	46	68
The L_{dn} is 71 dB						
45 ft. from the C_L of Santa Clara Street, West of Delmas Avenue:						
10:00 - 11:00 am	79	70	64	59	53	67
11:00 am - 12:00 noon	99***	71	64	59	51	72
8:00 - 9:00 pm	87	67	60	57	54	66
The L_{dn}/CNEL is 66 dB						

TABLE B-22 (Continued)

Location and Time Period	Sound Levels, dBA					
42 ft. from the C_L of Coleman Avenue, Opposite Hobson Street:	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}
3:00 - 4:00 pm	96 ***	76	67	57	51	73
4:00 - 5:00 pm	90	75	68	57	51	72
10:00 - 11:00 pm	87	68	56	50	45	67
The L_{dn} is 75 dB						
At the Edge-of-Pavement of Hanchett Avenue, East of Tillman Avenue:						
8:00 - 9:00 pm	81	57	50	45	41	57
At the Edge-of-Pavement of Hanchett Avenue, East of Sequoia Avenue:						
8:00 - 9:00 pm	85	62	50	44	40	60
At the Edge-of-Pavement of Martin Avenue, East of Sequoia Avenue:						
7:00 - 8:00 pm	83	57	46	42	39	65

Note: Highest maximum levels due to:

- * Aircraft flyby
- ** Train Passby
- *** Emergency siren

The calculated L_{dn}/CNEL values shown in Table B-22 reflect noise produced by all of the above described sources, either singly or in combination, depending on the proximity of the measurement location to each source. The L_{dn} and CNEL values were calculated using a decibel average of the measured daytime, evening and nighttime L_{eq} values. Adjustments were included for average roadway, railroad and aircraft traffic conditions. Where necessary, nighttime Leq values were estimated using procedures developed for roadway and train traffic (Van Houten, 1975). The noise contour map for the airport was also used in the noise level estimates. Thus, the calculated L_{dn}/CNEL values reveal existing noise levels at the project site as varying from 71 dB L_{dn} at the Julian Street location to 65 dB L_{dn} at the Bassett Street location. Along major roadways in the site vicinity, L_{dn} values varied from 66 dB along West Santa Clara Street to 75 dB along Coleman Avenue. Measured L_{eq} values in residential areas varied from 57 dBA at a Hanchett Street location to 65 dBA at the Martin Avenue locations (Pack and Associates, 1987).

Maximum intermittent noise levels (L_{max}) from aircraft sources recorded at the site are up to 94 dBA, with the highest maximum occurring from an aircraft flyby recorded at the Julian Street location. Higher maximum noise levels shown in Table B-22 are from train passbys and from emergency vehicle sirens (Pack and Associates, 1987).

Noise Standards

The noise compatibility standards for public buildings and recreational uses, including arenas, are contained in the Noise Element of the San Jose General Plan. The City's acceptable noise level objectives are 55 Ldn as the log-range exterior noise quality level, 45 Ldn as the interior noise quality level and 76 Ldn as the maximum exterior noise level necessary to avoid significant envronmental effects.

The project site is located within the 65 dB CNEL contour for aircraft noise from San Jose International Airport, and thus falls under the jurisdiction of the Santa Clara County Airport Land Use Commission (ALUC). This agency makes recommendations and sets policies for development within areas impacted by aircraft operations. The ALUC land use compatibility guidelines for recreational uses, including arenas, specify a level of up to 60 dB CNEL as "satisfactory," a level of 67 to 75 dB CNEL as "cautionary," and areas of 75 dB CNEL or higher to be avoided for these uses, "unless related to airport service." The ALUC guidelines also specify a maximum intermittent interior noise level of 75 dBA for sports arenas.

POTENTIALLY SIGNIFICANT IMPACTS

The proposed project includes construction of an arena, a four-level parking structure, and surface parking for 195 vehicles. Project-generated noise impacts include increased traffic flows on the main roadways surrounding the project site, noise from inside the arena, and the construction phase noise impacts, as discussed below. Also discussed are traffic noises impacting the arena.

1. Project-Generated Impacts

Traffic Noise

Project-generated traffic noise impacting the surrounding area will be created when the arena is being used. Increases in roadway traffic due to arena use would occur mostly for peak periods of 45 minutes to one hour during the evening and nighttime hours (4:00 PM to 12:00 midnight), and on weekends, which will be referred to herein as the arena peak hour traffic. These impacts will also be considered in the context of the L_{dn} and CNEL (i.e., over a 24 hour period) in relation to existing and future roadway, railroad and aircraft sources.

By Year-1991, when the arena is completed, railroad operations on the Southern Pacific Railroad Milpitas line are expected to remain the same as existing volumes. By Year-2000, up to two additional freight trains will be using the tracks near the site (Rockwell, 1987). Increases in rail traffic will also occur along rail lines in the surrounding area (Schatmeier, 1987). Aircraft noise levels are expected to remain the same as existing levels or decrease through Year-2000 (Slowinsky, 1987).

Increases in roadway traffic noise are estimated for both Year-1991 and Year-2000 conditions by comparing Average Daily Traffic (ADT) volumes for these years against the existing ADT. Increases in the calculated Ldn/CNEL from all three traffic sources for both Year-1991 and Year-2000 conditions are shown in Table B-23. The existing levels are also given for comparison. The future levels are given with and without the arena and are kept separate in in order to evaluate the contribution from the arena traffic alone. Although roadway traffic volumes increase significantly, the resulting Ldn/CNEL levels due to roadway, railroad and aircraft sources do not increase significantly over existing levels.

The locations shown in Table B-23 correspond to the measurement locations shown in Table B-22, except for Riverfront Road, which is shown for Year-2000 only when the roadway woud be completed.

The impact created by the increases in the future levels over existing levels can be assessed using the following criteria developed by the U.S. Environmental Protection Agency (see Table B-24).

Based on these criteria, it is evident that the noise level increases will have a nonsignificant impact on the surrounding areas of the arena site, whether due to general traffic increases or to project-generated traffic.

In addition to the above evaluation, which is in terms of the 24-hour noise analysis, the arena peak hour traffic noise impacts must be considered. While the L_{dn}/CNEL impacts will be minimal, the traffic increases during the times when the arena is being used may create significant noise level increases, especially during the quieter evening and nighttime hours. These predicted increases in the noise levels during the periods when the arena would be in use are shown in Table B-25. As shown in Table B-25, arena traffic would generate noise levels up to seven dBA higher than non-arena traffic levels at some locations. In reference to the noise impact criteria given above, arena traffic noise levels would impact at Julian Street measurement location.

TABLE B-23

ROADWAY, RAILROAD AND AIRCRAFT TRAFFIC NOISE LEVELS FOR EXISTING AND FUTURE CONDITIONS, WITH AND WITHOUT THE PROPOSED ARENA

	Noise Levels, (dB L_{dn}/CNEL)				
		Year 1991		Year 2000	
Location*	Existing	w/o Arena	w/Arena	w/o Arena	w/Arena
Julian Street	71	72	72	74	74
Santa Clara Street	66	67		67	67
Coleman Avenue	75	75	75	77	77
Stockton Street	69	71	71	68	68
Bassett Street	65	68	68	68	68
Riverfront Road (future only)	--	--	--	67	68

*Locations correspond to measurement location in Table B-22.

TABLE B-24

PREDICTED IMPACT FROM INCREASE OVER EXISTING NOISE LEVELS

Increase in Levels	Assessment	Expected Response
Less than 6 dBA	No Impact	Little comment or individual reaction
6 to 14 dBA	Some Impact	Some individual comment and reaction, no group action is likely
More than 14 dBA	Great Impact	Strong individual comment and group action

Source: U.S. Environmental Protection Agency

TABLE B-25

NOISE LEVEL INCREASES FOR MEASUREMENT LOCATIONS DURING ARENA PEAK HOUR TRAFFIC PERIODS

Location	Noise Level Increases, dBA	
Year:	1991	2000
1. Julian Street	2 - 7	1 - 5
2. Santa Clara Street	3	1 - 3
3. Coleman Avenue	3 - 4	1 - 2
4. Stockton Street	2 - 3	decreases
5. Bassett Street	0	0
6. Hanchett Street	2 - 3	1 - 2
7. Martin Avenue	0	0

As shown, when compared with the L_{dn}/CNEL noise level increases of Table B-23, it is evident that the arena peak hour traffic noise impacts will be more noticeable than the daily average impacts. Therefore, the noise (in terms of peak hour traffic) is seen to be a significant, unavoidable impact.

Impact to Adjacent Uses

Two other factors that must be considered are the noise level impacts in reference to the applicable standards, and the impacts in terms of the types of land uses that would be affected.

The project site and the general area surrounding it are already subjected to high noise levels, even for commercial and industrial land uses. Thus, any increase over the existing ambient levels would add to an existing excessive noise environment.

Even though the noise standards apply only to new development, they provide a good general indication of compatible noise levels for existing land uses as well. Consequently, any development located along major thoroughfares, whether existing or proposed, would be impacted by the arena traffic noise.

The area surrounding the site is mostly designated for commercial or industrial land uses, which are usually exposed to higher noise levels than residential areas. Accordingly, these uses are more tolerant of noise level increases. Therefore, the impacts on these areas would not be significant, especially when considering that the arena traffic impacts would occur at night and on weekends, when many of these uses are non-operative.

There is also an area of residential land use along The Alameda that would be impacted by project traffic. Two residential streets (Hanchett Street and Martin Avenue) have been included in the evaluation for Table B-25, which shows that increases for Hanchett Street of two to three dB in the ambient noise level could occur during the periods of heavy arena traffic. Thus, based on the impact table, noise level impacts on these residential roadways is expected to be nonsignificant.

The predicted impacts on other residential roadways is expected to be nonsignificant. It is assumed that most of the arena traffic would use the major thoroughfares for ingress and egress to the arena, thereby leaving residential roadways free of arena traffic. However, the potential for some traffic to utilize residential roadways as a short-cut would add some noise to those areas. Several of the intersections may become so congested during periods of heavy arena traffic that some vehicles may try to bypass the main traffic flow by using parallel residential roadways. This would in turn create noise impacts along these roadways. Accordingly, the noise (in terms of adjacent uses) would be seen to create temporary, less than significant impacts.

Arena Sound Impacts

The preliminary site plan for the project site shows an arena with a floor area of approximately 160,000 square-feet. With a floor-to-ceiling height of 70 to 80 feet, the total volume of the arena would be in the range of 11,200,000 to

12,800,000 cubic-feet. Arenas of this size fall into the "large" category, and require large speaker systems capable of handling several thousand watts of audio power. Typical audience area noise levels of 110 dBA will be created at times. Thus, a potential for disturbance will exist in the areas surrounding the arena.

If a pneumatic structure utilizing a flexible outer skin supported by air is used, sound insertion losses of 25 to 30 dB are attainable, depending on the fabric. Various types of coated fabrics have been used with weights ranging from 400 to 3,700 grams per square meter. Material surface weights of this range will yield sound attenuation of 25 to 30 dB at 500 Hertz sound frequencies. Thus, arena interior sound levels of 110 dBA would be reduced to 80 to 85 dBA in the near field and to 60 to 65 dBA at 500 foot distances.

An arena roof of fixed design would reduce noise by a minimum of 30 dB for roof surface weights of one pounds per square foot or more. Accordingly, arena interior noise levels would be reduced to 80 dBA in the near field and 60 to 65 dBA at distances of 500 feet. Such types of roof and wall structures will be adequate for reducing noise escape from the arena. However, noise intrusion from aircraft sources has low frequency components and this factor must be considered in the design of the arena with a fixed, solid roof shell. The noise from arena sound impacts will have a nonsignificant impact by the City of San Jose's General Plan standards for both the short- and long-term.

Construction Phase Impacts

During the construction phase of the project, high noise levels in the site vicinity may temporarily be created. The site preparation and construction phases will generate sound levels ranging from approximately 70 to 90 dBA at 50 foot distances from heavy equipment and vehicles. The construction vehicles and equipment generally are diesel powered and produce a characteristic noise which is primarily concentrated in the lower frequencies. Engine noise typically predominates, but additional noise originates from fans and transmission systems.

The total noise energy impacting a receptor point is dependent on the work phases of the construction process, on the distance, and on the angle subtended by the work processes at the noise receptor locations.

The powered equipment and vehicles act as point sources of sound which will diminish with distance over open terrain at the rate of six dBA for each doubling of the distance from the source. For example, the 70 to 90 dBA equipment peak noise range at 50 feet will reduce to 64 to 84 dBA at 100 feet and from 58 to 78 dBA at 200 feet. Therefore, during the construction operations, sound level increases of up to 19 dBA due to these sources could occur near the project boundary. Accordingly, noise impacts from construction activities would have a temporary, unavoidable impact on the surrounding area.

2. Noise Impacting the Proposed Project

In reference to the standards of the City of San Jose Noise Element and the Santa Clara County ALUC, construction of an arena on the project site would result in exposure of a publicly-used building to excessive levels of noise. Levels measured at or near the project site resulted in L_{dn}/CNELs of up to 71 dB, and

maximum levels of up to 94 dBA were recorded for aircraft overflights. In general, noise levels of 65 to 70 dB L_{dn}/CNEL are common over the entire site. Thus, under the City of San Jose standards, placement of the proposed arena facility at this location would be "acceptable with restrictions" (i.e., locating the arena at this site is acceptable on the condition that noise control measures are incorporated into the design). Under the ALUC standards, an arena would be a "cautionary" land use, which also indicates that acoustical measures are required to be incorporated into the building design for aircraft noise. Also, maximum levels of 94 dBA from aircraft would result in a 19 dBA excess over the recommended maximum interior level of 75 dBA of the ALUC standards. Noise levels of up to 85 dBA (maximum) from railroad operations would also impact the site.

Depending on the noise attenuation measures designed into the proposed arena facility, these impacts could be considered significant.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse noise impacts identified in this analysis.

1. Project - Generated Noise

Traffic Noise Impacts

Under the criteria for assessment of impacts, project-generated traffic noise will not be significant in terms of the applicable City and County standards. However, during periods of peak arena traffic, noise impacts may occur at nearby residential areas.

Mitigation of these impacts is difficult to achieve with the resources normally available. However, some form of mitigation, such as the use of temporary barricades to block non-arterial residential roadways, may help to reduce traffic flows into these areas and maintain the concentration of noise impacts along major thoroughfares, where their impact is not likely to be as severe. **(Included in Project)**

Arena Noise Emission Mitigation

A solid roof structure (i.e., made with roofing materials having a surface density of one or more pounds per square foot on a rigid framework) would provide the most noise-shielding for the surrounding areas. **(Included in Project)**

Noise generated from within the arena can be reduce by designing openings in the arena structure such as windows, ventilation shafts, or skylights, to be controllable and acoustically effective during periods when the arena is is use to present interior-to-exterior sound transmission.

This mitigation would reduce the noise impacts to a nonsignificant level. **(Not Presently Included in Project)**

2. Mitigation of Noise Impacts on the Arena

The ambient noise levels at the site preclude the use of an open-air arena. A roof design of adequate mass with controls on any openings is required to achieve compliance with the standards. The following measures are recommended to achieve maximum noise control for the arena:

- The arena should be designed to achieve a minimum building shell insertion loss of Sound Transmission Class (STC) 30. This rating applies to the roof, walls, windows, doors and all other building shell elements providing a barrier for exterior-to-interior noise transmission. **(Not Presently Included in Project)**

- No permanent, significant openings should be included between the exterior and interior seating spaces. Thus, some form of mechanical ventilation should be provided. Windows, which may be operable, and doorways should provide the STC 30 rating in the closed position. These elements should be maintained closed when the arena is in use. Vestibules may be used for doorways requiring more direct access to the exterior. **(Not Presently Included in Project)**

These mitigations would be necessary to reduce the noise impacts generated by the arena facility to a less than significant level.

3. Construction Noise Mitigation

Mitigation of the construction phase noise at the site can be accomplished by using quiet or "new technology" equipment. The greatest potential for noise abatement of current equipment is the quieting of exhaust noises by use of improved mufflers. Therefore, it is recommended that all internal combustion engines used at the project site be equipped with a type of muffler recommended by the vehicle manufacturer. In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly maintained engine, drive-train and other components. **(Not Presently Included in Project)**

In addition to the source emission controls, mitigation of construction noise can also be achieved by scheduling noisy operations for the daytime hours of 7:00 AM to 7:00 PM to avoid the more noise-sensitive evening and nighttime hours. **(Not Presently Included in Project)**

A noise-reduction benefit can also be achieved by appropriate selection of equipment utilized for various operations, subject to equipment availability and cost considerations. Noise levels should be a consideration in the selection of construction equipment and methods. **(Not Presently Included in Project)**

Even with the incorporation of these mitigations, construction noise would still be a temporary, unavoidable impact.

4. Other Mitigation

The proposed arena facility should comply with the Airport Vicinity Area Plan for interior noise levels. **(Included in Project)**

An avigation easement should be dedicated to the City of San Jose in compliance with the Airport Vicinity Area Plan. **(Included in Project)**

This would reduce noises impacting the arena facility to a less than significant level.

G. GEOLOGY AND SOILS

EXISTING SETTING

1. Geologic Setting

The project site is located in the Santa Clara Valley between the base of the western foothills of the Hamilton-Diablo Mountain Range and the northeasterly foothills of the Santa Cruz Mountains in the Coast Range Geomorphic Province of Central California. Bedrock in this area is the Franciscan Complex, a diverse group of igneous, sedimentary and metamorphic rocks of Upper Jurassic to Cretaceous age (70 to 140 million years old). These rocks are part of a northwesterly-trending belt of material that lies along the east side of the San Andreas Fault system, which is located approximately 11.5 miles southwest of the project site. Geologic cross-sections of the area contained in the California Department of Water Resources Bulletin No. 118-1 (1975) indicated that the depth to bedrock in this area is in excess of 600 feet.

The Franciscan rocks ae overlain, in this area, by marine and non-marine sediments of Cretaceous to Plio-Pleistocene age (80 to two million years old), which are, in turn, covered with alluvial, fluvial, lacustrine and bay deposits of Pleistocene to Holocene age (less than two million years old).

The regional geology has been mapped by Davis and Jennings (1954), Nilsen (1972), Rogers and Williams (1974) and Helley and Brabb (1971). These maps differ in scale and detail, but they generally agree that the site is underlain at the surface by fine-grained non-marine sediments of undetermined depth. The latter two references divide the materials on the project site into fluvial deposits from the edge of alluvial fans (fine sand, silt and clay), and interfluvial basin deposits (organic and silty clay). This latter unit is shown as a thin band along the westerly end of the project site.

The U.S. Department of Agriculture (1968) has mapped three agricultural soils on the project site. The three soil types lay in broad, northwesterly-trending bands, roughly parallel to the Guadalupe River. The Sunnyvale silty clay lies on the westerly side of the site. This soil has an effective depth of 60 inches and a high shrink/swell potential. The remainder of the project site is occupied by two members of the Campbell silty clay loam, which has an effective depth of 36 to 60 inches, and a moderate shrink/swell potential. The distribution of these materials on the project site is shown in Figure B-15.

The project site is not located in the City's Geologic Hazard Zone.

2. Seismic Setting

None of the references studied showed a fault on the project site. Faults mapped in the site vicinity are shown on Figure B-16.

Sv SUNNYVALE SILTY CLAY

Cc CAMPBELL SILTY CLAY LOAM, CLAY SUBSTRATUM

Ca CAMPBELL SILTY CLAY LOAM

Ch CLEAR LAKE CLAY

YeA YOLO SILTY CLAY LOAM

SOURCE: Earth Systems Consultants

SOIL TYPES IN THE PROJECT VICINITY

N

0 3000
SCALE IN FEET

FIGURE B-15

ACTIVE FAULT

POTENTIALLY ACTIVE FAULT

EARTHQUAKE EPICENTERS OF MAGNITUDE 0.5 OR GREATER (1969-1970)

SOURCE: Earth Systems Consultants

REGIONAL FAULT MAP	N 0 5 Scale in Miles	FIGURE B-16

The closest fault to the project site is the Silver Creek Fault, which has been mapped approximately 1.8 miles northeasterly of the site (California Department of Water Resources, 1963). Davis and Jennings (1954) and Rogers and Williams (1974) show the Silver Creek Fault to end at the northerly end of Silver Creek Canyon, approximately five miles southeast of the project site. This fault was first mapped by Crittenden (1951) and was described by him as a branch of the Calaveras Fault.

Jennings (1975) shows the Silver Creek Fault to be a "Quaternary" fault, or one that has displayed movement between 200 an 2,000,000 years ago. The Silver Creek Fault has been designated as a potentially active fault by Cooper-Clark and Associates (1974) and the Santa Clara County Planning Department (1975). Helley and Brabb (1971) show undisturbed Quaternary sediments in the valley across the projected trace of the Silver Creek Fault.

The Evergreen Fault has been mapped approximately 5.4 miles northeast of the project site near the base of the hills (Rogers and Williams, 1974; Dibblee, 1972). This fault is shown by Jennings (1975) to be "Quaternary." Cooper-Clark and Associates (1974), Rogers and Williams (1974) and the Santa Clara County Planning Department (1975) show this fault to be potentially active.

In 1978, Berlogar-Long and Associates conducted a study of the Mirassou Winery property (located southeast of the project site), during which they trenched across the mapped trace of the Evergreen Fault. No evidence of faulting was found along the trace mapped by Dibblee (1972) and Cooper-Clark (1974).

Approximately 900 feet east of Dibblee's trace, one of Berlogar-Long's trenches exposed geologic features that were interpreted by them as indicative of faulting. The "East Evergreen Fault" was zoned under the provisions of the Alquist-Priolo Special Studies Zones Act, based on Berlogar-Long's 1978 reports.

The Special Studies Zone originally established on the Evergreen Fault followed the traces mapped by Dibblee (1972), and has subsequently been removed from the most recent maps. Further exploration of that site by Earth Systems Consultants (1984) failed to produce any evidence of active faulting along either the Evergreen or East Evergreen Faults.

The Crosley Fault has been mapped along the base of the hills approximately 5.5 miles northeast of the site (Rogers and Williams, 1974; Dibblee, 1972). This fault has been classified as potentially active by Rogers and Williams (1974) and by the County of Santa Clara Planning Department (1975). Jennings (1975) shows it to be a "Quaternary" Fault, or one that has not moved in 200 to 2,000,000 years. This fault does not appear on the maps by Crittenden (1951), Davis and Jennings (1954) or Brown and Lee (1971). Dibblee (1973) was the first to map a continuous fault along the base of the hills in eastern San Jose. This exposure was surveyed and confirmed by Burkland and Associates (1977) during a study of the Minoli property, located south of Crosley Creek.

Studies along the Crosley Fault have shown it to be an active reverse fault with a variable dip to the east. Dibblee (1972) and others show the Crosley Fault to be part of the Hayward Fault system.

The active Hayward Fault has been mapped approximately 6.8 miles northeast of the project site (Dibblee, 1972; Rogers and Williams, 1974; California Division of

Mines and Geology, 1982). This fault is known to be creeping in Fremont (northeast of the site), and often acts as a water barrier. Ground rupture occurred along parts of the Hayward Fault from Warm Springs northerly during the earthquakes of 1836 and 1868 (Radbruch-Hall, 1974).

The Sargent-Berrocal Fault has been mapped 7.3 miles southwest of the project site. This section of the fault is considered to be potentially active.

The Calaveras Fault, located approximately 8.1 miles northeast of the project site, and the Hayward Fault, are both part of the regional San Andreas Fault system. The main trace of the San Andreas Fault is located approximately 11.5 miles southwest of the project site in the Santa Cruz Mountains. All three of these faults have been zoned by the California Division of Mines and Geology (1982).

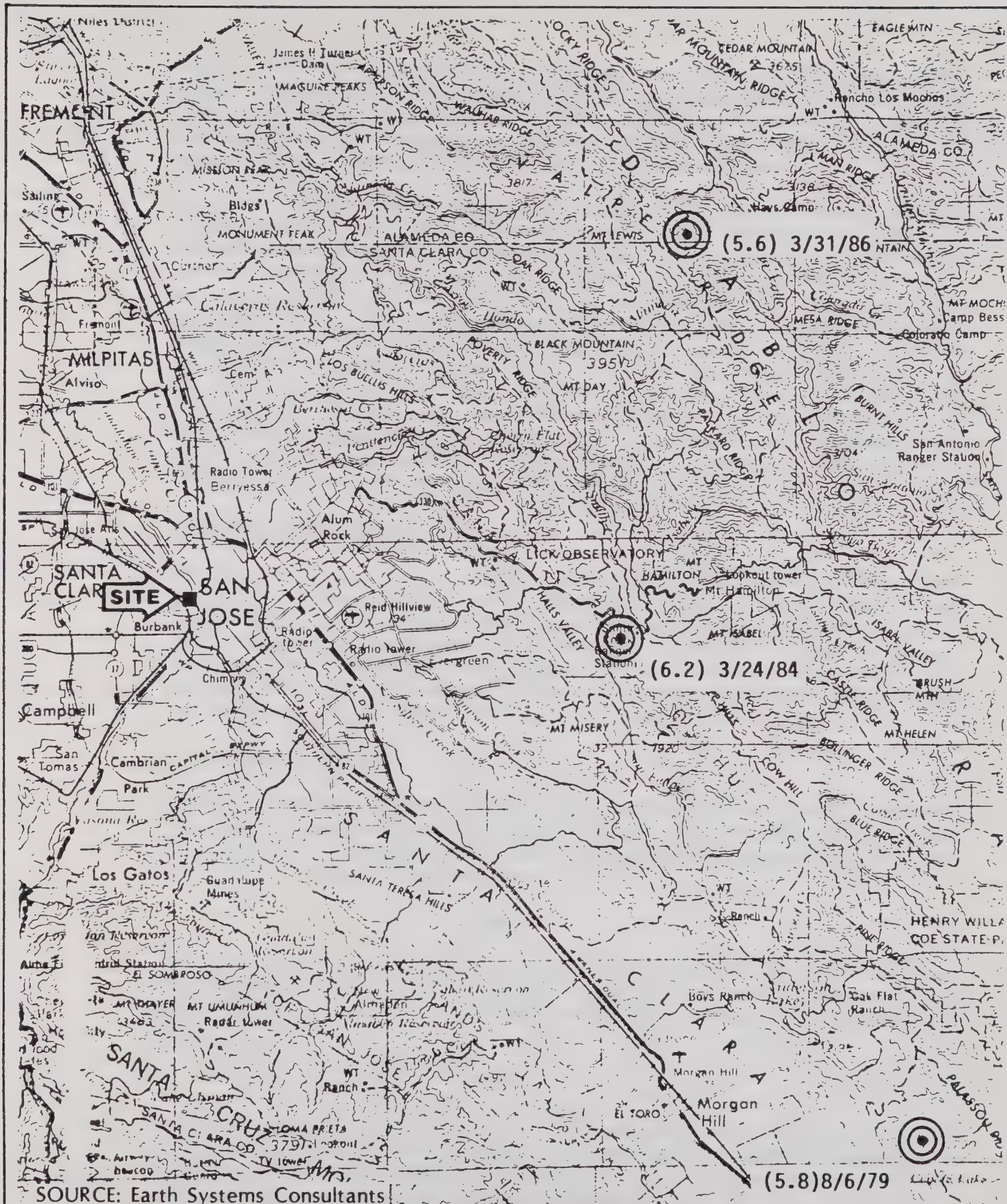
A number of major earthquakes are known to have occurred in the vicinity of the project site. The October 8, 1865 earthquake (estimated Richter magnitude of 6.5) was centered on the San Andreas Fault, approximately 13 miles west of the project site. The epicenter of the October 21, 1868 event (estimated Richter magnitude of 7.0) has been located at a point approximately 14 miles northwest of the project site on a branch of the Hayward Fault. The epicenter of the earthquake of April 18, 1906 (Richter magnitude of 8.3), originally plotted in Olema, Marin County, has been relocated to a point in northern San Mateo County, approximately 38-miles northwest of the project site (Real, et al, 1978). The July 1, 1911 earthquake (estimated Richter magnitude of 6.6) is plotted as having occurred approximately eight miles southeast of the project site. The location of that epicenter is uncertain, and it has not been ascribed to movement on any particular fault. The 1979 Coyote Lake (Richter magnitude of 5.8) and the 1984 Halls Valley (Richter magnitude of 6.2) earthquakes were centered on the Calaveras Fault, approximately 27 and 12 miles east of the project site, respectively. The 1986 earthquake near Mt. Lewis (Richter magnitude of 5.3) was centered approximately eight miles northeast of the project site and was not acsribed to a known fault (see Figure B-17).

The project site has been classified by Rogers and Williams (1974) according to its seismic hazard potential. The site is located within their zone D1-2, which includes areas in which the groundwater table is 10 to 20 feet below the surface, and where there is a high potential for seismically-induced liquefaction.

The map created for use in preparing the Santa Clara County Seismic Safety Plan (Seed, 1974) places the project site in the category of "Possible Liquefaction, Requires Investigation." This map indicates that the estimated characteristic period of the soil deposit is between 1.2 and 2.0 seconds.

The soil reports for four nearby projects were on file in the City of San Jose Public Works Department. In 1973, Woodward Lundgren prepared a report for the New Julian Street Bridge; in 1981, Terratech prepared a report on a site at the northeast corner of West Julian Street and Guadalupe Parkway; in 1985, Donald Banta and Associates prepared a report for a site on the northwest corner of Julian and Autumn Streets; and, in 1985, United Soil Engineering prepared a report for a site on the east side of Autumn Street at Howard Street.

Terratech's report stated that even during severe ground shaking the weak layers of soil at this site would not collapse. United Soil Engineering found that there



LOCATION OF
EARTHQUAKE EPICENTERS

N

0 5 Miles

FIGURE B-17

was a low to moderate potential for strength loss during an earthquake. They stated that the 10- to 12-foot thick layer of natural soil above the water table would help bridge over the weak layers. Banta's study concurred with this finding, stating that the overlaying clayey soils would form a "cap" over the thin lenses of sand. Woodward-Lundgren did not address this issue.

In analyzing the available data in these reports, it appears that there may be a greater possibility for liquefaction and densification of the soils to occur during a seismic event than was expressed in the above reports. United Soil Engineering plotted data points from borings on a Liquefaction Potential Graph. Data from sample 1-4 at a depth of 16 feet lies on the moderate to high liquefaction potential division line. The sand layer that this sample lies in appears to some degree on all of the United Soil Engineering's boring logs and in the logs from Banta and Woodward-Lundgren. Banta's Boring No. EB-2 shows sand layers with less than 20 percent fines with blow counts of 45 blows per foot. This blow count indicates that the layer is probably dense enough that it would not liquefy. In Woodward-Lundgren's logs, the blow counts in this material are generally low, but the fact that 365-pound and 265-pound hammers were used in obtaining most of the samples must be taken into consideration.

3. Subsurface Exploration

The subsurface exploration program at the project site consisted of two phases: 1) cone penetration testing; and 2) exploratory boring. The locations of the probes and borings were distributed to cover the entire site with a concentration around the proposed location of the arena and the proposed parking structure. The approximate locations of the probes and boring are shown in Figure B-18. Access to the project site during the subsurface exploration was restricted, and the fieldwork was confined to City-owned rights-of-way.

4. Subsurface Conditions

Six major material types were identified during the field investigation. However, the soil profile underlying the project site is highly variable. Some of the materials are not present in some locations, and those present vary in thickness and location below the ground surface.

Unit 1

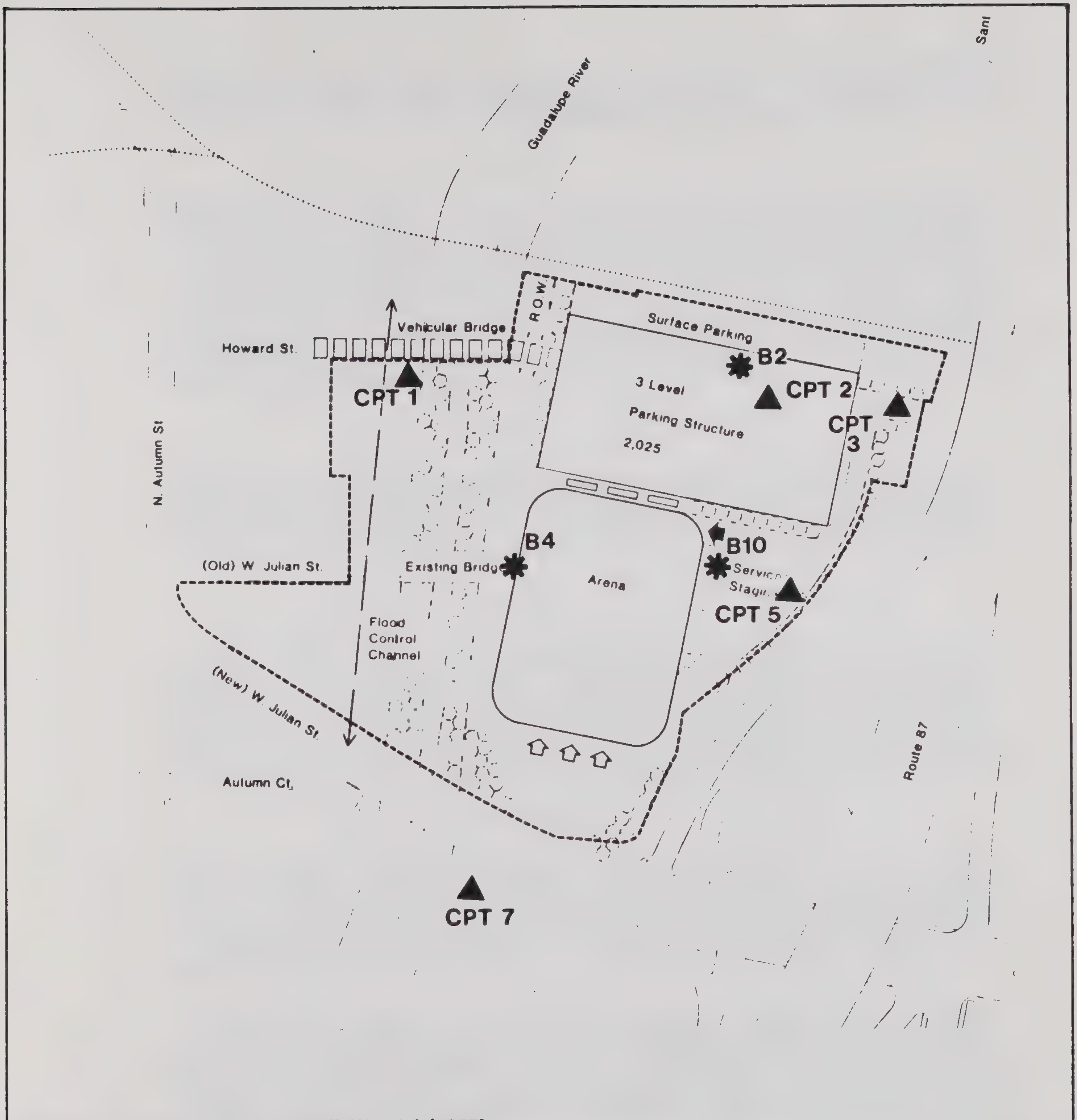
The uppermost unit in Boring 10 was utility trench backfill. It was 11-feet deep and consisted of silty clays and fine sand. The fact that this location was over a utility trench accounts for Units 2 and 3 materials not being encountered at this location.

Unit 2

The near-surface material in Boring 2 is a dark grey-brown, highly plastic clay. This layer was six-feet thick at this location and was also found between 10-and 12-feet deep at this location. This material was located at a depth of six-to 11-feet in Boring 4 and was not present in Boring 10.

Unit 3

Interbedded between the two layers of Unit 2 material in Boring 2 is a layer of Unit 3 material -- grey-green, silty clay. This material was four-feet thick in



SOURCE: EARTH SYSTEMS CONSULTANTS (1987)

BORING

CPT PROBE

N

0 250 500 Feet

Approximate Scale

GEOLOGIC BORING AND PROBE LOCATIONS

FIGURE B-18

Boring 2, and three-feet thick in Boring 4, where it was located on top of the Unit 2 material, and was not found in Boring 10. This unit is softer and less plastic than the Unit 2 materials. Unit 3 varies in thickness from three to six feet.

Unit 4

Beneath the clay units is a layer of granular material. This layer consists predominantly of tan silty sands with varying amounts of fine-grained material and fine gravel. This material ranges from medium-dense to dense. In Boring 1, it was located between 12 and 14 feet and 17 and 27 feet. In Boring 2, it was located between 12 and 15 feet and 21 and 26 feet. In Boring 10, it was located between 11 and 26 feet. The Cone Penetration Test (CPT) probes identified layers of this material between the depths of 13 and 59 feet. The thickest layer was 20-feet thick (CPT Probe 1).

Unit 5

This unit consists of dense sandy gravels. This unit was identified in Boring 2 between 14 and 17 feet, in Boring 4 between 15 and 21 feet, in CPT Probes 1, three and five between 40 and 46 feet and in CPT Probes 1 and 2 below 64 feet. It was not encountered in Boring 10.

Unit 6

This unit consists of a predominantly silty clay with some sandy clay. This material varies in consistency from medium-stiff to very stiff. In the borings, this material was observed to have a relatively uniform thickness of 12 to 14 feet. The CPT probes indicate that this material has a relatively uniform thickness across the site, extending from a depth of 25 to 62 feet. In some locations, there is a six-foot thick layer of interbedded gravels between 40 and 46 feet.

Groundwater

The groundwater level was determined during the field exploration program to vary from between 12 and 37 feet below the ground surface. The groundwater level was visible in three of the borings and was determined during two of the CPT probes by pausing and allowing the excess pore pressures generated by the probe to dissipate.

The measurements with the cone were determined by measuring the equilibrium pore pressure at depth and calculating the corresponding groundwater level (see Table B-26). The cone measurements appear to have discerned the level of the regional groundwater table. The borings encountered what appears to be a perched groundwater table between 12 and 18 feet. The thickness of the perched groundwater table was not determined. The observed groundwater table levels indicate that if the proposed arena is to be constructed with a 15-foot deep basement, only minor dewatering will be required during construction. It should be noted that these measurements were taken in late May, 1987. The rainfall during the previous year was below average, and the groundwater level during construction may be higher.

TABLE B-26
DEPTH OF GROUNDWATER ON PROJECT SITE

Boring/CPT Probe	Depth Below Gound Surfaces
Boring 2	12 to 15 feet
Boring 4	15 to 18 feet
Boring 10	16 feet
CPT Probe 1	Not Determined
CPT Probe 2	37 feet
CPT Probe 3	Not Determined
CPT Probe 5	33.5 feet
CPT Probe 7	Not Determined

Source: Earth Systems Consultants, 1987

POTENTIALLY SIGNIFICANT IMPACTS

1. Response of the Soils to Seismic Loading

Some of the soils at the project site may liquefy when subjected to seismic loading. Liquefaction is a phenomenon that occurs when loose, granular soils are subjected to strong ground shaking. Under these conditions, the granular soils will attempt to densify, resulting in the development of excess pore pressures which impedes densification. If the pore presures cannot dissipate as rapidly as they are generated, the soil behaves like a heavy, viscous fluid. Under these conditions, the soil will loose shear strength, and if the imposed shear stresses (due to structural loading, or the presence of a nearby slope) exceed the soil strength, the "liquified" soil will "flow." This can lead to slope or foundation failures. Where the soil is confined or there are no imposed shear stresses, no movement occurs except for some possible areal or local settlement.

If the soils are only partially saturated, there is no impedence to densification, and as a result local and/or areal settlement occurs.

The susceptibility of the soils to liquefy depends on the degree of shaking to which they are subjected, the density of the soils, the amount of fine-grained material in the soils, the confining pressure (the depth below the ground surface), and the degree of saturation.

The potential ground shaking at this project site was estimated using the methods suggested by Seed and Idriss (1982). The site is located approximately 6.8 miles from the Hayward Fault (maximum probable earthquake M = 7.0), and 11.5 miles from the San Andreas Fault (maximum probable earthquake M = 8.3). It is estimated that the maximum probable earthquake on the Hayward Fault would cause 10 to 15 cycles of significant shear stress at the project site, with a maximum ground accelleration of 0.28 g. Significant shear stress is defined as two-thirds the maximum shear stress developed during the earthquake. It is

estimated that the maximum probable earthquake on the San Andreas Fault would cause 20 to 25 cycles of significant stress, with a maximum ground accelleration of 0.24 g.

As previously stated, a perched groundwater table was observed across parts of the poject site at a depth that ranged from 12 to 18 feet below the existing grade, but this groundwater was not encountered in other parts of the site. The regional groundwater table was measured with the CPT to be approximately 33 to 37 feet below ground level. The degree of saturation of the material between these two levels is unknown. This is important because saturated soils are more prone to liquefy than partially saturated materials. However, partially-saturated soils are more prone to densify under cyclic loading.

Liquefaction is primarily confined to granular soils with a clay content of less that 15 percent. Sieve analyses and hydrometer analyses of several of the materials suspected of being susceptible to liquefaction were performed in the laboratory to determine their grain size distribution. The results of these tests indicated that they have an insufficient percentage of fine-grained material to provide internal cohesion and prevent liquefaction.

The potential liquefiable materials at the project site appear to be wide-spread, but lenticular, and not continuous over the entire site. A loss of shear strength in these materials during an earthquake could lead to lateral spreading and landsliding along the river bank. Densification of the loose to medium-dense granular material could cause local or areal settlement, especially in the partially-saturated soils.

The loss of shear strength should not result in a loss of bearing capacity, because the potentially-liquefiable soils will be well confined. This could, however, be a problem near the river and in the vicinity of the depressed loading zones.

2. Response of the Site Soils to Loads Imposed by the Structures

Compressibility

If the proposed arena is supported on a shallow foundation, the primary response of the site soils to the loads imposed by the proposed arena facility will be to compress and cause settlement. The compressible soils that will have the most impact on this project are the Unit 6 materials which begin at a depth of 25 feet (seven to eight feet below the anticipated depth of the shallow foundations). This material is highly compressible, and significant settlements will occur if the building is founded on shallow foundations. The difference in the thickness of compressible soils below the arena, due to the presence of interbedded gravels, will probably cause different amounts of settlement in various portions of the arena.

Initial estimates of the settlement and differential settlement that would occur indicate that they would be within tolerable limits for this type of structure, provided that the foundation acted as a unit.

Materials Able to Support Deep Foundations

Cone Penetration Test Probes 1 and 2 indicate that there is a dense layer of granular material (Unit 5) underlying the project site at a depth of between 63 to

65 feet below the existing grade. The capacity of the CPT was reached on each of these holes, so the thickness of this layer was not determined. This layer of material would probably provide excellent bearing capacity for deep, end-bearing piles. Cone Penetration Test Probes 1, 3 and 5 indicate that there are intermittant, shallower layers of this material on the project site. The shallower layers could be a serious impediment to driving piles down to the lower granular material. In some areas, the shallower layers may be capable of supporting end-bearing piles.

3. Suitable Foundation Types

Suitable foundation types for the major and minor structures proposed for this project site are discussed below. Suitable foundations must be able to sustain seismic loading, settlement due to consolidation of the underlying soils, possible areal settlement of the underlying soils during an earthquake and the loads imposed by the proposed arena. In order to provide soil design parameters, additional site investigation work will be required.

Conventional Spread Footings

Conventional spread footings may be suitable for this project if the concourse portion of the structure is sufficiently rigid that the footings will act as a unit and not independently. The differential settlement of the footings that are able to act independently due to consolidation of the upper soils and the possible dynamic consolidation of the granular deposits during an earthquake will probably exceed tolerable limits for independent footings. Unitized, conventional spread footings may be suitable for minor one- or two-story, light-weight structures such as ticket sales offices, etc.

Mat Foundation

If conventional spread footings cannot be adequately tied together, a unitized mat foundation may be a suitable foundation for the arena on this site. The primary advantage of this system is that the structure would respond as a unit to differential settlement of the underlying soils and could span any localized soft areas.

Compensated Foundation

The bearing capacity of the foundation could be increased, and the amount of post-construction settlement decreased, if a compensated foundation was constructed rather than a mat foundation. A compensated foundation is similar in form to a mat foundation, except that the depth of the foundation is increased. A fully-compensated foundation is one where the weight of the structure matches the weight of the soil that is excavated from the site. The depth of a compensated foundation may be restricted by the groundwater level, because of the need to dewater.

Piles

Driven piles could be used to construct suitable foundation for the proposed structures on this site. The piles could be designed to develop bearing capacity with skin-friction, or by end-bearing on the dense sands and gravels found below

this site. Dense soil layers that may increase the difficulty of driving piles to the bearing layer were encountered in some locations.

Drilled Piers

If drilled piers are used at this project site, it is expected that the pier holes will need to be cased to prevent collapsing, and that drilling mud may be required to prevent the saturated silty sands from blowing into the bottom of the pier hole. Unless specific structures or installations that are susceptible to vibrations caused by pile driving are identified in the vicinity of the proposed arena and parking structure, drilled piers appear to be a less-suitable foundation than driven piles.

4. Suitability of Site for Development

Based upon the above analysis, the proposed project would conform to the City's General Plan Hazards goals and policies. The project would include mitigation to reduce the identified impacts from the hazards of soil erosion, weak and expansive soils and geologic instability. The proposed project also includes mitigation that is consistent with General Plan policies to minimize the risk from exposure to seismic activity.

From a geotechnical viewpoint, this site is considered suitable for the proposed development, provided that measures are implemented during design and construction of the proposed project to mitigate the potential impacts caused by the geologic and seismic conditions identified in this section.

Although a moderate to major earthquake on the Hayward, Calaveras, San Andreas or one of the other active faults in the Bay Area could produce severe ground shaking at this site, there is no evidence that an active or potentially-active fault crosses the site. Accordingly, the potential for ground rupture to occur is considered to be low. Therefore, the proposed project would not have a significant impact on the existing soils and groundwater conditions.

MITIGATION MEASURES

The following are mitigation measures included in the project that could reasonably be expected to reduce the adverse geotechnical impacts identified in this analysis.

- The level of groundwater indicates that if the arena is to be constructed 15 feet below the existing grade, some dewatering may be required during construction. All arena facilities located below the existing grade should be water-tight. **(Included in Project)**

- Potentially-liquefiable soils were identified adjacent to the Guadalupe River at approximately the same elevation as the toe of the stream banks. The loss of shear strength in these materials during an earthquake due to liquefaction could cause slope failures. If facilities are to be constructed in this area, it is recommended that they be set back from the top of the bank or that an engineering solution be applied to stabilize the river bank. **(Included in Project)**

- Some of the loose, granular soils at this site may be expected to densify when subjected to strong ground shaking. This will result in local or areal settlement of

the site. Near the Guadalupe River, where there is an open exposed face, some of the saturated granular soils may "flow" out of the slope, causing larger settlements near the river. Structures may be built near the river bank if measures are implemented to stabilize the banks; otherwise, structures should be set back from the top of the bank. **(Included in Project)**

- The recommendations in this section regarding suitable foundation types are based on the limited site investigation that was described in the body of this section. This analysis is comprehensive enough to identify any adverse geotechnical conditions at the site and to determine which types of foundations would be suitable at this site. Further site investigation will be required in order to provide specific foundation design recommendations. **(Included in Project)**

- A structural engineer should be consulted to determine if the characteristic period of the site soils needs to be determined, and if a dynamic analysis of the site soils would be warranted. **(Included in Project)**

- Additional studies should include a detailed estimate of the expected settlement of the proposed arena. This estimate will require a preliminary layout of the arena columns and an estimate of their loads. This settlement estimate can be used to determine if a shallow foundation may be an acceptable foundation for the arena. **(Included in Project)**

- Additional studies would include a determination of the extent and thickness of the dense sands and gravels underlying this site, to aid in determining whether deep foundations would be suitable for this site. **(Included in Project)**

H. HYDROLOGY AND DRAINAGE

EXISTING SETTING

The project site is located adjacent to the Guadalupe River and downstream of Los Gatos Creek. The Guadalupe River begins at the confluence of Guadalupe Creek and Alamitos Creek in the Almaden Valley south of the project site, but its tributaries start in the Santa Cruz Mountains to the south and west. All of the watershed is within Santa Clara County. The Guadalupe River flows generally northwesterly through the City of San Jose and discharges into Coyote Slough approximately one and one-half miles east of the Coyote Slough discharge point to San Francisco Bay.

There are three reservoirs in the upper Guadalupe River watershed (Calero, Almaden and Guadalupe), with a combined capacity of 15,680 acre-feet. In addition, Lexington Reservoir (on Los Gatos Creek) has almost 27,000 acre-feet of storage. These reservoirs are operated for water supply purposes, but also provide some incidental flood control benefits due to peak flow attenuation within the reservoirs (Santa Clara Valley Water District, 1982).

The upland mountainous areas of the Guadalupe River have soils mainly of the Los Gatos, Gaviota, Vallecitos and Hayman associations. These soils range in depth from shallow to deep and are located on steep to very steep slopes. The vegetative cover includes grasses, oak, pine, brush and hardwood. The infiltration rate of water in these upland areas is very slow. The upland soils have been classified to have a high to very high erosion potential, although sedimentation rates in the reservoirs have not been high in the past. This is probably due to the relatively undisturbed character of the upland portions of the watershed (Santa Clara Valley Water District, 1982).

The soils of the lowland valley and foothill areas are of the Arbuckle, Zamora and Pleasanton associations, with depths varying from shallow to moderately deep. In general, the soils drain relatively well. The lowland soils are classified as having none to slight erosion potential and have a moderate water infiltration rate. Some erosion has occurred in the stream channels and banks during periods of high runoff (Santa Clara Valley Water District, 1982).

The upland portion of the watershed has very little development at this time, and the Santa Clara County General Plan calls for only nominal development in the future, with the majority of the area being designated for open space. The valley floor, which has been actively developed in the past 30-years, includes residential subdivisions, shopping centers and light industries, and has the potential for additional development in the future by infilling vacant parcels and increasing development densities.

The project area has a relatively mild climate, with 90 percent of the annual rainfall occurring in the late fall and winter months. January is usually the month with the most rainfall. The annual mean precipitation within the watershed varies from a high of 68 inches in the Santa Cruz Mountains to a low of 15 inches in San Jose.

The Guadalupe River channel from Interstate 880 (formerly State Route 17) north to Coyote Slough was constructed in 1963 by the Santa Clara Valley Water District. The initial project was designed to provide 12,000 cubic feet per second (cfs) channel capacity. Since that time, the channel has been improved to convey the 100 year design flood of 17,000 cfs (Santa Clara Valley Water District, 1982). The channel north of Interstate 880 is generally trapezoidal in cross-section with earthen levees. The channel banks and bottom are covered, in varying degrees, with several different types of vegetation, ranging from the typical fresh and saltwater marsh vegetation in the lower reaches to riparian woodland near Interstate 880.

The Guadalupe River channel upstream of Interstate 880 has not been improved for flood control purposes. The channel is incised below ground level without levees and generally has a parabolic cross-section. The channel maintains an extensive riparian woodland which has generally been undisturbed by the development adjacent to the channel.

The Guadalupe River was studied as part of the Flood Insurance Study for the City of San Jose, completed in 1979. The channel has an estimated minimum capacity of approximately 9,000 cfs downstream of the Los Gatos Creek confluence and a minimum capacity of approximately 7,000 cfs upstream of Interstate 280 (Federal Emergency Management Agency, 1986).

Based on the Flood Insurance Study, flooding from the Guadalupe River north of Interstate 280 would occur on the east side of the river, flowing as shallow flooding north through downtown San Jose toward North San Jose and Alviso. An additional overflow from the channel would occur north of the project site near Interstate 880, flowing on the westerly side of the channel through the San Jose International Airport and into the northerly portion of the City of Santa Clara.

Historically, the Guadalupe River flooded frequently. Flooding was recorded as early as 1889 and major flooding occurred in 1911, 1941, 1945, 1952, 1955, 1958 and 1963. Most recently, localized flooding occurred near Alma Street (south of Interstate 280) in 1980, 1982 and 1983. The most extensive damage from the Guadalupe flooding occurred in the 1958 flood, prior to the 1963 channel improvement project (Santa Clara Valley Water District, 1982 and 1983).

The majority of the project site is within the 100 year floodplain area as defined by the Flood Insurance Study (see Figure B-19). Overflows from the Guadalupe Channel between the Southern Pacific Railroad right-of-way and Interstate 280 would flow along the west side of the river towards the railroad. The floodplain through downtown San Jose is generally classified as Zone AO (shallow flooding during the 100 year flood with average depths between one and three feet). The project site east of the Guadalupe River is entirely within the 100 year floodplain with flood insurance zones of AO (shallow flooding with an average depth of two feet) and AH (shallow ponded flooding with the water surface at an elevation of 77 feet above mean sea level). The ponded area is caused by the railroad tracks to the north which blocks the flow and ponds the flood water on the south side of the railroad right-of-way. The portion of the project site westerly of the Guadalupe River is not within the 100 year floodplain (Federal Emergency Management Agency, 1986).

The portion of the project site easterly of the Guadalupe River is fully developed under existing conditions and is predominately buildings or pavement. There are existing storm drains along West Julian Street and Old Julian Street which drain easterly to the Guadalupe River. The portion of the project site west of the Guadlupe River is also predominately buildings or pavement. There are existing storm drains along Old Julian and Howard Streets which drain easterly to the Guadalupe River.

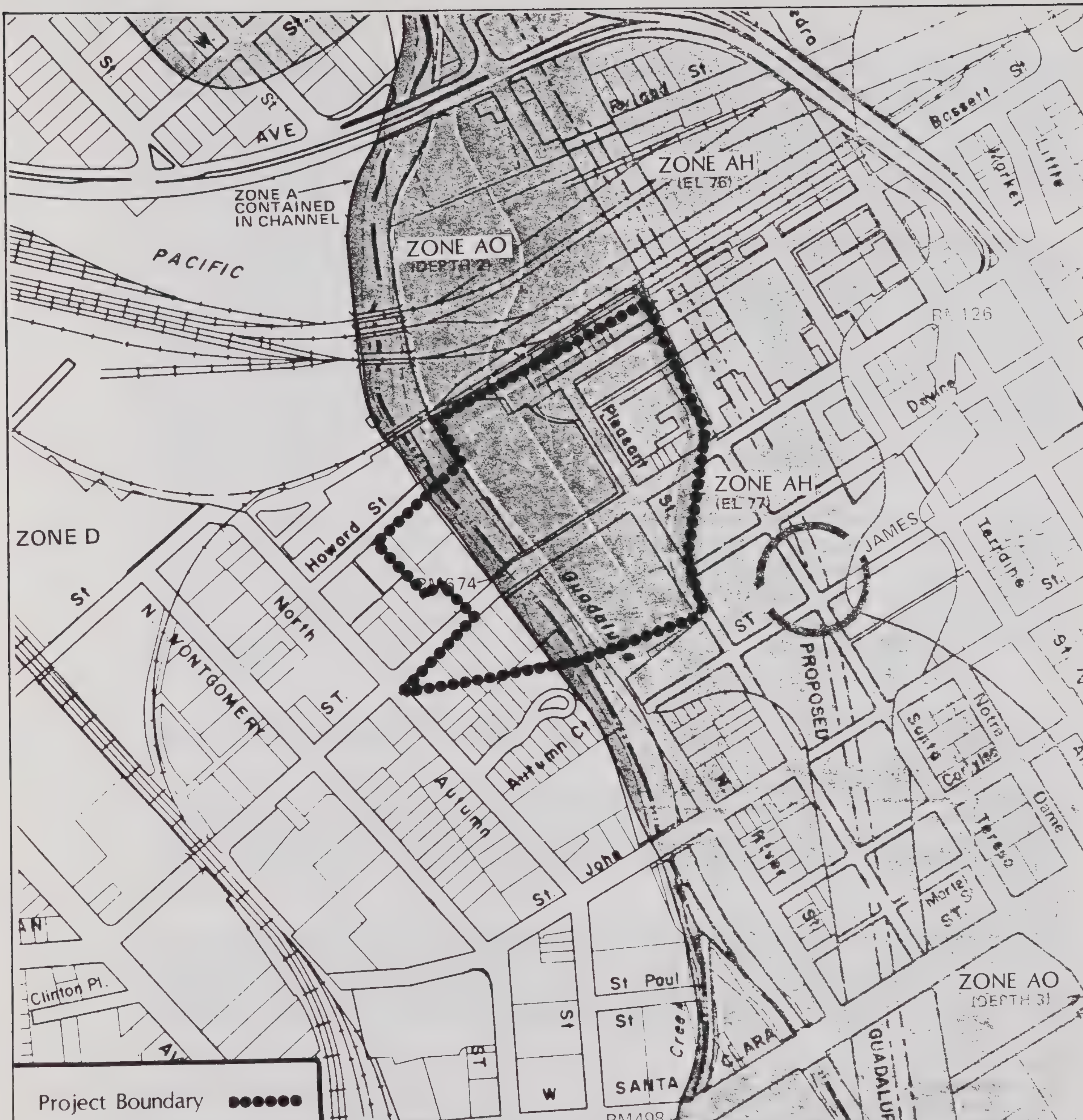
The percentage of sheet flow blockage for the site is determined by the existing land use percentage. Accordingly, since the propsed project would be analyzed under existing conditions, development of the arena facility could not exceed 50 percent of the sheetflow area or could not be wider than the existing development, whichever is greater.

POTENTIALLY SIGNIFICANT IMPACTS

The project site lies within the existing floodplain and therefore the proposed arena project must be flood-protected to meet City and Federal standards. In addition, the arena, parking structures and site landscaping may affect the local flood conditions if the entire site were flood-protected with fill or berms. Flood-protecting the site would prevent flow across the site and would increase the flow easterly of the site. This would increase the potential water surface elevations southerly and easterly of the site.

The project site is fully developed under existing conditions, and the proposed project will not increase the amount of impervious area on the site. Therefore, there should be no increase in the amount of storm runoff from the project site. The landscaping to be included in the project may be an increase in pervious area from the limited landscaping currently on the site with the existing industrial and commercial land uses.

The City of San Jose has proposed construction of a new storm drain along the Southern Pacific Railroad right-of-way, east of the Guadalupe River. The proposed storm drain would serve the project site and would improve existing storm drainage east of the project site. The proposed storm drain would flow westerly and would discharge to the Guadalupe River. The proposed storm drain is part of the City of San Jose's drainage Master Plan for the area, and would be constructed at some future date with or without the implementation of the proposed arena facility project. The City of San Jose has a three-year design standard for storm drains. The proposed storm drain would be required because the existing Old Julian Street storm drain is under the proposed siting of the arena and would therefore need to be replaced (Lee, 1987).



Project Boundary ●●●●●●

ZONE AO: Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.

ZONE AH: Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.

SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY

100-YEAR FLOODPLAIN ZONES	N 0 500 Feet	FIGURE B-19

The proposed storm drain could increase the flow in the Guadalupe River downstream of the project site since the new storm drain capacity would exceed the capacity of the existing storm drain. However, the proposed storm drain capacity will be approximately 55 cfs, while the 10 year flood rate in the Guadalupe River is over 7,000 cfs. The increased flow due to the proposed storm drain would not make a perceptible change in the flow velocity or water surface elevations of the Guadalupe River.

The United States Army Corps of Engineers has proposed a flood control project for the Guadalupe River from Interstate 880 upstream to Interstate 280, which would involve channel improvements adjacent to the project site between the Southern Pacific Railroad right-of-way and West Juian Street. The preliminary design for the Guadalupe River channel improvements involve widening the earthen channel on the west side in the reach upstream of West Santa Clara Street. The west channel bank and low flow channel adjacent to the project site would not be affected. However, the proposed channel widening on the west bank would encroach approxiately 100 feet into the surface parking areas proposed on the west side of the Guadalupe River (U.S. Army Corps of Engineers, 1985).

The Army Corps of Engineers project may also affect the bridges across the Guadalupe River which are proposed as part of this project. The Corps of Engineers project proposed modifications to the Old Julian Street bridge to correspond to the wider river channel. Implementation of the proposed project would include modifications to increase the traffic lanes across the bridges and/or construction of new bridges. The new or modified bridges may affect the hydraulic conditions of the channel improvements.

The proposed project would conform to the City's General Plan Floodign goals and policies to include mitigation that would reduce impacts and risks of flood damage.

Construction on the project site may increase erosion on the site and result in sediment being deposited in storm drains and the Guadalupe River channel. The site is currently fully developed and has little or no sediment erosion under existing conditions. Construction practices which disturb the underlying soils may promote sediment erosion.

Based on this hydrology and flooding analysis, the project site would be suitable for an arena facility development, provided that mitigation measures are implemented to mitigate potential adverse impacts. Therefore, the proposed project would not have a significant impact on the existing hydrology and drainage.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce adverse hydrology and flooding impacts identified in this analysis.

- The potential flood hazard on the project site east of the Guadalupe River can be mitigated by building the proposed arena facility (and other auxiliary structures which must be flood protected) on fill or by incorporating structural flood protection measures in the design of the proposed facilities. The proposed arena should be flood protected to a minimum elevation of 77 feet (National Geodetic Vertical Datum) plus freeboard to meet the provisions of the Federal Emergency Management Adiministration requirements. To prevent any adverse effects on

adjacent floodplain conditions, the surface parking, access roadways and landscaping areas should be at or below existing grade elevations to allow flood flows through the project site. The existing buildings on the project site currently block almost all flow from south to north except along Pleasant Street. Therefore, if sufficient flow areas are included in the design of the project to allow flow from south to north to meet or exceed the existing flow area along Pleasant Street, the existing flood conditions should not be affected. **(Included in Project)**

- To mitigate the potential land use conflict between the Guadalupe River channel improvements and the proposed surface parking areas on the west bank of the channel, some additional property could be acquired for use as surface parking or the parking spaces could be added to the proposed parking structure on the east side of the channel. The parking on the west side of the channel could be considered as temporary until such time that the channel improvements are constructed. Currently, the channel improvements are scheduled to be completed by 1995. **(Not Presently Included in Project)**

- The proposed modifications of the Old Julian Street bridge or the construction of a replacement bridge downstream would not conflict with the channel improvement project if the ultimate channel configuration is considered in the design of the bridge. The Army Corps of Engineers bridge modifications would be a local cost item not paid for by the Federal project. Therefore, it would be more cost effective to construct the ultimate bridge as part of the Arena project instead of requiring a second construction project to modify the bridge as part of the channel improvement project. **(Not Presently Included in Project)**

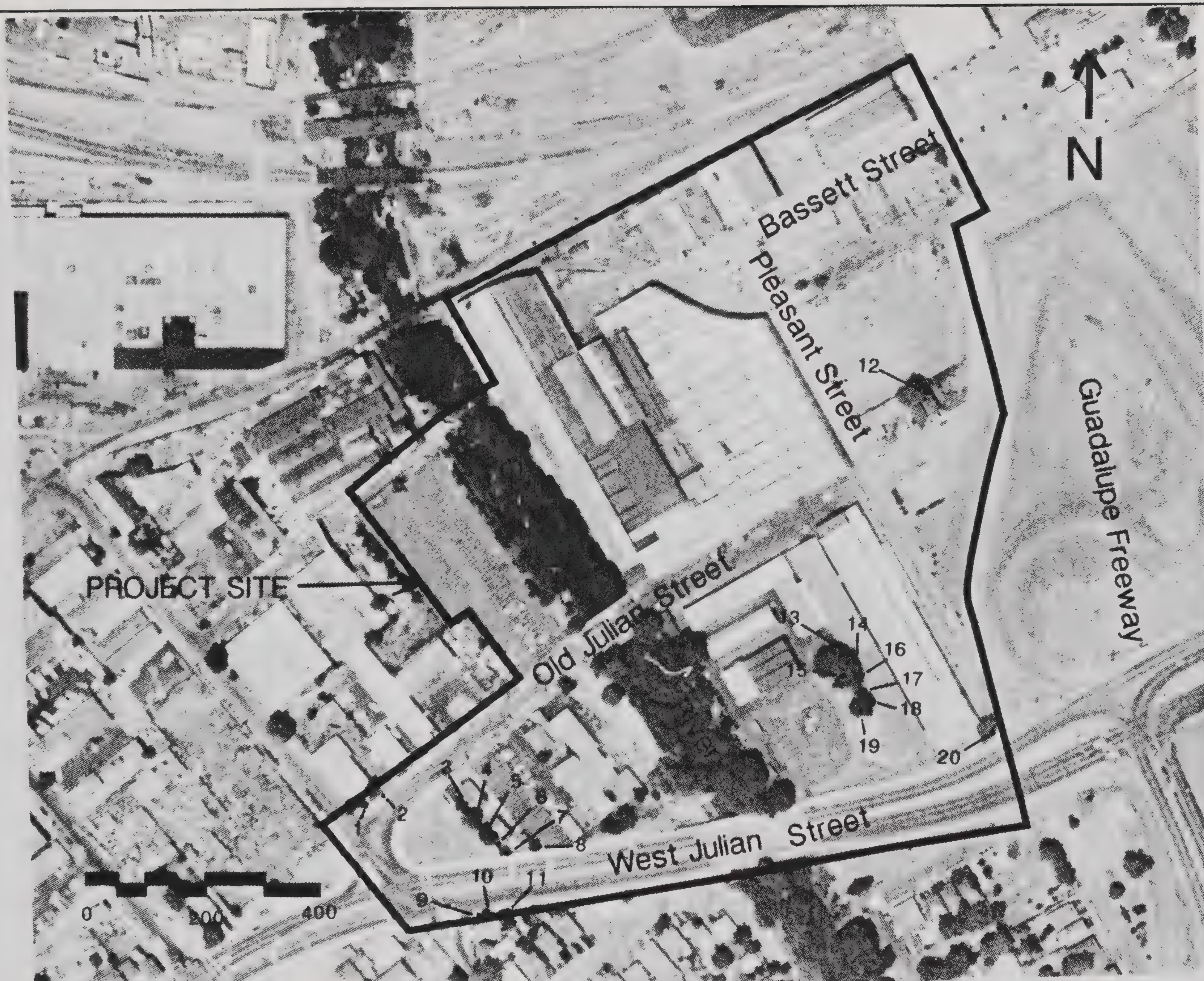
- Potential sediment deposition in storm drains and channels can be mitigated by the use of appropriate construction practices. Scheduling necessary earthwork during the dry season will prevent most runoff erosion, and watering exposed soils will limit wind erosion. Earthwork during the rainy season should be separated from the existing street gutters and storm drains through the use of ditches, berms or filtration barriers such as hay bails. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the runoff is released from the from the project site. Roadways surrounding the construction area should be swept regularly to collect sediment deposited on the roadways before it is washed into the storm drains or channels. **(Included in Project)**

I. VEGETATION AND WILDLIFE

EXISTING SETTING

1. Vegetation

A general reconnaissance of woody and herbaceous vegetation within the project site was conducted during February and July, 1987. This reconnaissance found that the vegetation on the site could be divided into two types. One type is the urban landscaping and ruderal species found in the developed or vacant area of the site and the other is the riparian community along Guadalupe River which traverses the western sector of the site. The riparian community of the Guadalupe River appears as a dark band on Figure B-20 where it traverses the



EXISTING TREES AND VEGETATION ON PROJECT SITE

FIGURE B-20

western sector of the site. The trees dominating the riparian community include willows (Salix spp.), cottonwood (Populus spp.), and California box elder (Acer negundo var. californicum). Beneath and between the trees there is a lower story of shrubby willows, blue elderberry (Sambucus mexicana), and California blackberry (Rubus ursinus) as well as herbacious species such as curly dock (Rumex crispus), California mugwort (Artemisia douglasiansa), and poison hemlock (Conium maculatum), and cocklebur (Xanthium strumarium). This riparian community includes wetland habitat.

Vegetation occupying the urban and vacant areas of the site included primarly non-native species planted and landscaping around private development, street trees or weedy vegetation on vacant property. The herbaceous vegetation is composed of grasses such as Italian ryegrass (Lolium perenne), knotgrass (Paspalum sp.), annual bluegrass (Poa annua), wild oat (Avena barbata), burmuda grass (Cynodon dactylon), ripgut brome (Bromus rigida) and fescue (Festuca sp.). Other herbs include milk thistle (Silybum marianum), filaree (Erodium sp.), common groundsel (Senecio vulgaris), algerian ivy (Hedera helix), fennel (Foeniculum vulgare), yellow star thistle (Centaurea solstitialis) and field mustard (Brassica campestris). Common shrubs include pyracantha (Pyracantha sp.), coyote brush (Baccharis pilularis var. consanguinea) and small-flowered nightshade (Solanum nodiflorum).

Trees on the site greater than four inches in diameter were surveyed and are mapped on Figure B-20. The 20 surveyed trees on the site are listed in Table B-27 by height class and whether they are located on private or City property. Trees recorded on the project site were predominately non-native species. These trees include tree-of-heaven (Ailanthus altissima), English walnut (Juglans regia), prunus (Prunus sp.), common fig (Ficus sp.), Wattle (Acacia melanoxylon), Canary Island palm (Phoenix canariensis) and sycamore (Platanus sp.). All but four of the trees are less than 18 inches in diameter. The four ordinance trees include one tree-of-heaven (18 inches in diameter) and three Canary Island palms (18- nches in diameter each).

No rare, threatened or endangered plant species were observed during the field reconnaissances, nor have any been recorded in this area by the California Natural Diversity Data Base (1986). No heritage trees, as recognized by the City of San Jose, are located on the project site.

2. Wildlife

A wildlife survey of the site was conducted during January and July 1987 to assess the wildlife habitat value. The site is composed primarily of urban industrial land uses and a few older residential land uses. The riparian habitat of the Guadalupe River traverses the western sector of the project site. The riparian habitat is relatively productive habitat even though urban uses are developed nearly to the edge of the channel banks. The Guadalupe River channel affords a foragaing area as well as nesting and cover for several species. In addition, the riparian habitat of the Guadalupe River forms a ribbon open space and non-urban development through the urban area thereby affording a corridor for wildlife to move throught the developed parts of San Jose. The trees and vegetation along the Guadalupe River provide a visual cue that helps orient birds moving through the urban area. This riparian habitat is used by several species of wildlife such as Audubon cottontail (Sylvilagus auduboni), fox squirrels, racoon (Procyon lotor), (Sciurus niger), common egret (Casmerodius albus), belted kingfisher (Megaceryle

TABLE B-27

EXISTING TREES ON PROJECT SITE

No.	Botanical Name	Common Name	Dia. In.	Ht. Class	City/ Priv.
1.	Ailanthus altissima	Tree of Heaven	18	C	P
2.	Ailanthus altissima	Tree of Heaven	18	B	P
3.	Phoenix canariensis	Canary Island Palm	18	B	P
4.	Phoenix canariensis	Canary Island Palm	18	B	P
5.	Juglans regia	English Walnut	18	B	P
6.	Juglans regia	English Walnut	18	B	P
7.	Juglans regia	English Walnut	18	B	P
8.	Acacia melanoxylon	Wattle	18	B	P
9.	Prunus sp.	Prunus	18	B	P
10.	Juglans regia	English Walnut	18	B	P
11.	Platanus sp.	Sycamore	18	B	P
12.	Ficus sp.	Common Fig	18	B	P
13.	Acacia melanoxylon	Wattle	18	B	P
14.	Ailanthus altissima	Tree of Heaven	18	B+	P
15.	Ailanthus altissima	Tree of Heaven	18	B+	P
16.	Ailanthus altissima	Tree of Heaven	18	B+	P
17.	Ailanthus altissima	Tree of Heaven	18	B+	P
18.	Ailanthus altissima	Tree of Heaven	18	B+	P
19.	Phoenix canariensis	Canary Island Palm	18	B	P
20.	Platanus sp.	Sycamore	18	B	P

Height Class: A = 10' B = 10 - 30' C = 30'+

alcyon), barn swallow, (Hirundo rustica), red-shafted flicker (Colaptes cafer) and scrub jay (Aphelocoma coerulescens).

The urban uses and vacant land of the project site provide some wildlife habitat that consists primarly of ruderal vegetation and a few street trees and landscaping. Urban-adapted avian species such as the house finch (Carpodacus mexicanus), brown towhee (Pipilo fuscus), and house sparrow (Passer domesticus) are commonly found across the project site. Common mammals found on vacant land or elsewhere on the project site include botta pocket gopher (Thomomys bottae), beechey ground squirrel (Citellus beecheyi), and house mouse (Mus musculus).

No rare, threatened or endangered vertebrate or invertebrate species were observed within the project site during the field reconnaissance, nor have any been recorded with the California Natural Diversity Data Base (1986).

POTENTIALLY SIGNIFICANT IMPACTS

1. Vegetation

Constuction of the proposed bridge across the Guadalupe River in the vicinity of the old Howard Street alignment would impact the riparian community and wetland habitat. The riparian community of the Guadalupe River Channel in the vicinity of the proposed bridge is approximately 150 feet wide. An area of approximaterly 0.6 acres of riparian vegetation would be disturbed by bridge construction assuming that the bridge structure were 100 feet wide and there would be a strip 40 feet wide on each side of the bridge disturbed by construction equipment and activities. As much as 0.3 of riparian vegetation could be disturbed if the Old Julian Street were widened or reconstructed. The riparian community includes large willows, cottonwoods, and California box elder as described previously. In the vicinity of the old Howard Street alignment, there are six large cottonwood trees and several willows some or all of which would be removed during bridge construction depending upon the location of the new bridge.

During bridge construction and/or bridge widening, a low flow crossing will be constructed by placing culvert(s) in the bottom of the channel and covering them over with gravel. This crossing will allow construction vehicles and equiptment to corss the river channel and work on both sides without creating substantial mud and silt in the river water. During construction and removal of the low flow crossing there will be temporary increases in the silt and soil in the river water. This temporary turbidity is not expected to have a significant lasting effect upon the aquatic wildlife habitat downstream.

Subsequent to bridge construction and/or widening much of the vegetation will become naturally reestablished over time in the areas adjacent to the bridges that were disturbed during construction activities. While the natural revegetation is becoming reestablished, earth channel banks could be exposed to erosion if they are not protected by vegetation and/or rock blankets or other erosion control measures. The natural revegetation process could take a decade or more and replacement of large trees would take longer. After revegetation there would be a net loss of riparian vegetation of approximaterly 0.5 acres that lies beneath the new and/or widened bridges.

Depending upon the specific site plans utilized, there may be additional impacts to the riparian vegetation along the Guadalupe River. Increased public access and use adjacent and along the river corridor (via Julian and Old Julian Streets) may impact the existing vegetation through off-trail use, trampling of vegetation or vegetation clearing for the arena support facilities. The combined impacts to riparian and wetland vegetation from construction and increased human use and activities are potentially significant because of the limited area of riparian community.

Construction of the arena facility and parking structures and other project improvements would potentially remove all vegetation on the site including the 20 trees shown shown on Figure B-20. The removal of vegetation outside of the Guadalupe River is not a significant impact.

2. Wildlife

Depending upon project design and construction, vegetation would be eliminated from much or all of the site except the area of the Guadalupe River channel. This loss of vegetation would result in a correspoding loss of wildlife habitat but it does not constitute a significant impact since the affected habitat is typical of urban areas and is of relatively low value.

In contrast, the riparian wildlife habitat of the Guadalupe River is relatively productive. The riparian habitat will be disturbed and impacted by new bridge construction and/or widening as described above in the impacts to vegetation. The loss of wildlife habitat roughly corresponds to the loss of riparian vegetation. Construction activities in the stream channel, such as establishing a low flow crossing or it removal, would result in silt and soil being churned up in the river water and cause temporary downstream turbidity in the river water. This turbidity is not expected to cause a lasting effect upon the downstream aquatic habitat. After the natural reestablishment of vegetation in the areas that are disturbed by bridge construction there would be a net reduction of approximately 0.5 acres of wildlife habitat beneath the bridge structure.

The new or widened bridges across Guadalupe River constitute an additional incremental intrusion in the riparian habitat of this stream. This together with the addition of increased human activities and pedestrians in the area could potentially reduce the wildlife habitat value to species such as the green heron (Butorides striatus) which tend to be secretive and easily frightened.

Construction and operation of the proposed arena facility including the associated parking areas would disturb or eliminate existing wildlife habitat. Depending upon the final design and location of the arena parking structures and lots, lighting standards adjacent to Guadalupe River could affect nocturnal hunting predators such as the screech owl (Otus asio). Other birds that are active at night could also be affected by parking lot lighting in the area adjacent to the riparian corridor of Guadalupe River. The proposed arena facility parking lot lighting near Guadalupe River would not be substantially brighter or higher than other existing lights adjacent or near the channel.

The project would have a significant impact upon the riparian habitat of the Guadalupe River. The impact to this habitat is significant beacuse its high wildlife value and because there is a relatively limited amount of this type of wildlife habitat. Therefore the distrubance of 0.9 acres of this habitat during

construction and the permnant elimination of approximaterly 0.5 acres beneath bridge structures after completion of construction is a significant. The project's impact also represents one incremental impact upon the riparian habitat of the Guadalupe River which together with other existing and planned development constitute a significant cumulative impact.

MITIGATION MEASURES

The following possible mitigation measures are identified to minimize adverse vegetation and wildlife impacts associated with the construction and operation of the proposed arena facility.

The loss of vegetation and wildlife habitat value would tend to be reduced by retaining as many of the existing trees as possible through site design. When trees cannot be incorporated into the arena facility, their removal can be mitigated by replacing them, particularly large trees, with two, three or more young native trees where possible. **(Not Presently Included in Project)**

Vegetation and wildlife habitat impacts can be reduced by using native plant materials to as great an extent as possible (while achiving the desired aesthetic goals) since native wildlife is best adapted for native vegetation and therfore it provides the best and most productive wildlife habitat. Vegetation and wildlife habitat impacts are also reduced by using a diversity of plant materials including as many native species as possible. **(Not Presently Included in Project)**

Future impacts and disturbance can be avoided if the landscaping and other improvements of the arena parking facility in the area of the site to be used for the Guadalupe River Park (in the future) are consistent and/or compatible with the guidelines developed for the Guadalupe River Park Master Plan. This includes the use of native plants and non-natives plants of high wildlife value in the landscaping plan, and a minimum buffer zone of 50-feet from the outside edge of the existing riparian vegetation or the top of the riverbank, whichever is greater. **(Not Presently Included in Project)**

Impacts to riparian wildlife would be reduced or avoided by using parking lot and other lighting that is directed downward in the area of the site near Guadalupe River. Impacts to riparian wildlife can also be reduced or avoided by not placing lighting immediately adjacent to the riparian area. **(Not Presently Included in Project)**

Construction impacts to the riparian habitat of Guadalupe River can be reduced by carefully restricting area disturbed by construction activities adjacent to the new or widened bidges. These area could be limited to an area approximaterly 30 feet wide. In addition, large trees in or adjacent to the channel and near the outside limits of the construction zone could be protected and avoided including their root systems and thereby preserved. Impacts to the riparian wildlife habitat could also be reduced by a revegetation program that accelerated the reestablishment of vegetation. **(Not Presently Included in Project)**

Impacts to the vegetation and wildlife habitat of the Guadalupe River form pedestrian foot traffic could be reduced by restricting the pedestrian pathway and access into the stream channel. **(Not Presently Included in Project)**

Impacts to the aquatic habitat would be reduced by the construction of a low flow crossing during construction activities thereby reducing the extent of silt and soil that enters the river water and moves downstream. This mitigation will be required a part of the California Department of Fish and Game Stream Alteration Agreement/Permit. **(Included in Project)**

J. URBAN SERVICES

EXISTING SETTING

The project site is located in an area of existing urban development, with many existing services. Additionally, the City of San Jose implements a Level of Service policy to insure the controlled implementation of growth related to providing services. The City's Horizon 2000 General Plan identifies service level standards for most major categories of City services. The General Plan provides for goals and policies to ensure the quality of services provided to the City's residents.

1. Fire Protection

The project site is currently served by the City of San Jose's Fire Department. Station No. 1, located at 201 North Market Street, is the "first response unit" to service the project site. Station No. 1 is an engine company and a truck company, with the truck company providing an 85 foot aerial ladder unit. Each of these units (the engine and truck companies) has a minimum of five firefighters on duty at all times. The average response time from Station No. 1 to the project site is approximately three minutes. This is within the recommended response time set forth by the City of San Jose (Fujczak, 1987).

Station No. 7, located at 800 Emory Street, is the "second response unit" to the project site. Station No. 7 is an engine company only, with a minimum of five firefighters on duty at all times. The average response time from Station No. 7 to the project site is approximately three minutes. This is within the recommended response limits set forth by the City of San Jose (Fujczak, 1987). The goal of the City's General Plan is a four minute average response time.

There currently exists a 12 inch main fire-flow pressure line that crosses the project site. This line would have to be relocated to allow for the proposed development (Overhouse, 1987).

The City of San Jose participates in a mutual aid program with the Cities of Milpitas and Santa Clara. Through this program, should the City of San Jose's Fire Department need assistance in addition to its own units, one or both of the mutual aid cities would provide assistance to the City of San Jose in whatever capacity was needed (Fujczak, 1987).

2. Police Services

The project site is currently served by the City of San Jose's Police Department. Officers patroling the project area are dispatched from the police headquarters, located at 201 West Mission Street. The project site is located within Beat K-1 of the San Jose Police Department's service area. All of the roadways in the project area are under the jurisdiction of the San Jose Police Department. Major crimes

in the area, in terms of frequency, are car clout, malicious mischief and simple assault (Burde, 1987).

The San Jose Police Department cooperates in a mutual assistance program with the Santa Clara County Sheriff's Department, the Cities of Milpitas and Santa Clara and the California Highway Patrol (Burde, 1987).

The City's General Plan goal is to maintain a seven minute average response time to calls for robbery, rape and aggrevated assault.

3. Water Supply

The San Jose Water Company provides water to the project site. Currently, there are existing 16 inch mains in Julian and Pleasant Streets to serve the project site. There is also a four inch line in Pleasant Street and a three inch line in Bassett Street. There are several smaller lines to serve the individual parcels scattered throughout the project site.

4. Storm Drainage

The City of San Jose maintains existing 18 inch and 12 inch storm drainage mains in Julian and Pleasant Streets, respectively, that are available to serve the project site. It is anticipated that the Pleasant Street line would be abandoned following implementation of the Downtown Supplemental Plan II Program, which would include the construction of a new line in Bassett Street (Mindigo, 1987).

5. Sanitary Sewer

Sanitary sewer service is provided to the project site by the City of San Jose. There are several sanitary sewer lines serving the project site, including a 30 inch line in Old Julian Street (west of Pleasant Street), a 27 inch line in Pleasant Street and Bassett Streets, a 12 inch line that connects Bassett Street with the Howard Street line, and an eight inch lin in Pleasant and Old Julian Streets. Although the 27 inch line is new, the condition of the other lines is questionable due to their age (Gonzales, 1987).

The City's General Plan goal is to maintain a Level of Service D for sanitary sewer flow.

6. Wastewater Treatment

The San Jose Water Pollution Control Plant (WPCP) provides wastewater treatment service to the project site. The WPCP, which is located approximately seven miles northwest of the project site, has an existing holding capacity of approximately 167 million gallons per day (mgd). The City of San Jose has a growth management policy which regulates new development throughout the City so that the capacity of the system is not exceeded. This is also the goal of the City's General Plan (City of San Jose, 1987).

7. Natural Gas

Pacific Gas and Electric Company (PG&E) provides natural gas service to the project site. There are two existing gas lines on the project site: a 10 inch high-pressure line located in Old Julian Street and a 12 inch high pressure line located in New Julian Street (Sink-Combs-Dethlefs, 1987).

8. Electricity

Electrical service is provided to the project site by PG&E. There are existing overhead electrical wires in the project vicinity which provide service to the existing residences and businesses within the project boundaries.

9. Telephone

Pacific Bell provides telephone service to the project site. Existing overhead lines are currently located on all streets within and adjacent to the project boundaries.

10. Solid Waste

Solid Waste service is provided to the project site by Waste Management of Santa Clara County. Listed below in Table B-28 are the existing landfills which Waste Management utilizes, their capacity and anticipated date of closure.

TABLE B-28
EXISTING LANDFILLS AND REMAINING CAPACITIES

LANDFILL REMAINING CAPACITY	ESTIMATED YEAR OF CLOSURE
Guadalupe (1,590,000 tons)	1995
Kirby Canyon (24,300,000 tons)	50 years (recently opened)
Newby Island (19,113,000 tons)	2016
Santa Clara Landfill (1,250,000 tons)	1992

SOURCE: Santa Clara County (1986)

Waste Management is also able to provide resource recovery services, should the demand warrant such sevices (Nicoletti, 1987).

POTENTIALLY SIGNIFICANT IMPACTS

1. Fire Protection

Existing facilities and firefighting apparatus would be adequate to meet the anticipated demand generated by the proposed arena facility. As previously

stated, both the "first reponse" and "second response" units are within the acceptable reponse time frames established by the City of San Jose. However, there is concern that the fire-flow capacity in the project vicinity would not be adequate to meet the demands generated by a facility of this size (Overhouse, 1987). The relocation of an existing main would be required and service extended to the site to provide adequate fire-flow capacity to the project site.

2. Police Protection

Since the proposed arena facility will be operated by the City of San Jose, additional City police personnel will be required to monitor security at the proposed events. This additional need for police personnel could impact existing police service, thereby requiring the addition of more police personnel. However, until specific venues are arranged, it will not be known how many, if any, additional personnel would be needed. Traffic control at the end of the events could be provided by the City of San Jose. This would assist in dispursing traffic in a timely manner (Burde, 1987).

The proposed project could have a significant impact on existing police services.

3. Water Supply

The existing four-inch lines in St. John and Autumn Streets are inadequate to serve the proposed project site. Addtionally, as previously stated, the fire-flow capacity in the project area is too low for adequate fire protection.

The proposed project, with mitigation to provide sufficient fire-flow capacity, would have a less than significant impact on the environment.

4. Storm Drainage

The project site is fully developed under existing conditions, and implementation of the proposed project will not increase the amount of impervious surface area on the site. Accordingly, it is not anticipated that there will be any change in the amount of run-off from the site. The landscaping proposed as part of this project may be an increase in pervious surface area from the limited landscaping on the site with the existing commercial and light industrial land uses (Wheeler, 1987).

The City of San Jose has proposed construction of a new storm drain along the Southern Pacific Railroad right-of-way, easterly of the Guadalupe River. The proposed storm drain would serve the project site and would improve existing storm drainage east of the project site. The proposed storm drain would flow westerly and discharge into the Guadalupe River. The proposed storm drain is part of the City of San Jose's drainage master plan for the area, and would be constructed at some future date without the implementation of the proposed arena facility (Wheeler, 1987).

The proposed storm drain would increase the flow in the Guadalupe River (downstream of the project site) for three year design events which exceed the capacity of the existing storm drain. However, the proposed storm drain capacity will be approximately 55 cubic-feet per second, while the 10 year flow rate in the Guadalupe River is over 7,000 cubic feet per second. The increased flow due to the proposed storm drain would not make a perceptible change in the flow velocity or water surface elevations of the Guadalupe River (Wheeler, 1987).

The proposed project would not have a significant impact on existing storm drainage services.

5. Sanitary Sewer

A worst-case analysis were calculated by the City of San Jose to assess the sanitary sewer impacts of the proposed arena facility. Based upon an attendance level of 19,000 patrons, it was estimated that each of the patrons would require 1.5 minutes of bathroom use (this equates to a total of 24,000 minutes). Within a

30 minute half-time period, if all 19,000 patrons needed access to the toilets, the arena would need to have a 400 gallon per minute capacity. Four hundred gallons per minute in a 24 hour day (without variation in use) equates to 600,000 gallons per day capacity (Tanner, 1987).

This capacity would require a 10 inch sanitary sewer line with a one percent hydraulic slope to the main line. There is sufficient capacity in the existing system to accommodate this flow (Tanner, 1987).

In connection with the reconstruction of some of the roadways in the project vicinity, some of the existing lines may be replaced and/or abandoned. However, there are no specific designs of these improvements (Gonzales, 1987).

With mitigation, the proposed project wuld not have a significant impact on sanitary sewer flows.

6. Wastewater Treatment

In connection with the sanitary sewer service described above, there is sufficient capacity at the San Jose Water Pollution Control Plant to accommodate the effluent generated by the proposed arena facility (WPCP, 1987).

There is sufficient capacity available to reduce the impact of the proposed arena facility to a nonsignificant level.

7. Natural Gas

The two existing gas lines conflict with the proposed arena development. Both of the lines could be relocated in a shared easement along the northerly site boundary. The City of San Jose Planning Department has recommended a minimum setback of 100 feet between this line and the proposed arena facility.

With implementation of mitigation, the proposed project would not have a significant impact on the environment.

8. Electricity

Many electrical lines currently on the project site would conflict with the proposed development. A utility plan prepared for this project indicates a possible solution to relocating these facilities, but it is conceptual in nature. Existing services are available to reduce this impact to a nonsignificant level.

9. Telephones

Pacific Bell service to the project site would not be affected by the implementation of the proposed arena facility. There are sufficient facilities available to service the proposed project (Mindigo, 1987). Accordingly, the impact would be nonsignificant.

10. Solid Waste

The proposed arena facility would generate an estimated three to four yards (loose) of solid waste per 1,000 patrons, depending on the venue. Based upon statistics prepared by the firm that provided waste collection services for the 1984 Olympics, in Los Angeles, listed below are the rankings (in order) of the events that generate the most solid waste (Nicoletti, 1987):

- Boxing;
- Hockey;
- Basketball;
- Circus;
- Concerts;
- Tennis; and
- Ice Shows.

As previously stated, Waste Management of Santa Clara County is able to provide resource recovery services. However, it would be necessary for the service staff of the proposed arena facility to separate the different resources into individual containers (i.e., paper, glass). Based upon the anticipated amount of solid waste to be generated by the proposed arena facility, it would not appear that enough waste would be generated to offset the cost of resource recovery compacters (Nicoletti, 1987).

Depending on the design of the proposed arena facility, waste collection could be a potential impact. The most effective method for refuse collection is the front-loading, three-yard containers. Placement of these containers throughout the proposed surface and structure parking areas would minimize the amount of loose litter, while at the same time they would expedite collection services. With regard to refuse collection of the arena facility, direct access into and out of the facility would allow for an expedient collection (Nicoletti, 1987).

Construction of the proposed arena facility would generate refuse that would need to be removed from the site. Waste Management would be able to provide debris boxes for these purposes. However, advanced notice of at least 30-days would be needed to make the proper arrangments for the delivery of these debris boxes (Nicoletti, 1987).

There exists service and capacity to reduce this impact to a nonsignificant level.

MITIGATION MEASURES

The following are mitigation measures included in the project and other measures that are not included but could reasonably be expected to reduce the adverse impacts associated with urban services identified in this analysis.

- All rental agreements for usage of the proposed arena facility should include provisions for funds for any additional police personnel that would be required for security purposes at the proposed arena facility. **(Not Presently Included in Project)**

- Relocate and install a water pressure line pumping station to improve the fire-flow characteristics to an acceptable level. **(Not Presently Included in Project)**

- Underground all new and existing utility lines on the project site. **(Included in Project)**

K. AESTHETIC RESOURCES

EXISTING SETTING

1. Visual Setting

The project site is located in the northwesterly quadrant of the intersection of State Route 87 and Julian Street, in the City of San Jose, and is comprised of approximately 15 acre of urbanized land. The topography of the site, as well as that of the surrounding area is fairly level, with an average elevation of 80 feet above mean sea level (United States Geological Survey, 1973). As stated in PART THREE, SECTION I., A. LAND USE of this document, the project site is currently utilized for commercial and light-industrial land uses.

2. Visual Character of the Project Site

The project site is currently utilized for a variety of commercial and light-industrial land uses. The majority of the project site is occupied by the Food Machinery Corporation (FMC). However, this facility has been closed since April, 1987 (Aro, 1987). Photographs of the project site and project vicinity are presented in Figures B-21 and B-22. The majority the structures on the project site are limited to one- and two-stories, although structures on the FMC property are up to three-stories (approximately 40-feet) in height.

The project site is almost entirely covered by impervious surfaces (i.e., concrete, pavement). Limited vegetation and pervious surfaces comprise the remainder of the site, although there is extensive riparian vegetation along the Guadalupe River, which bisects the project site.

3. Visual Character of the Project Vicinity

The area surrounding the project site is varied in character. North of the project site (across the Southern Pacific Railroad right-of-way) is an existing commercial storage facility. To the south of the project site (across Julian Street) is an existing residential neighborhood. East of the project site is the right-of-way for State Route 87 (the Guadalupe Expressway). This roadway is currently under construction. To the west of the project site are various commercial and light-industrial land uses, including a commercial office building that is currently under construction. The Guadalupe River, which bisects the project site, provides a riparian, natural visual element through the site.

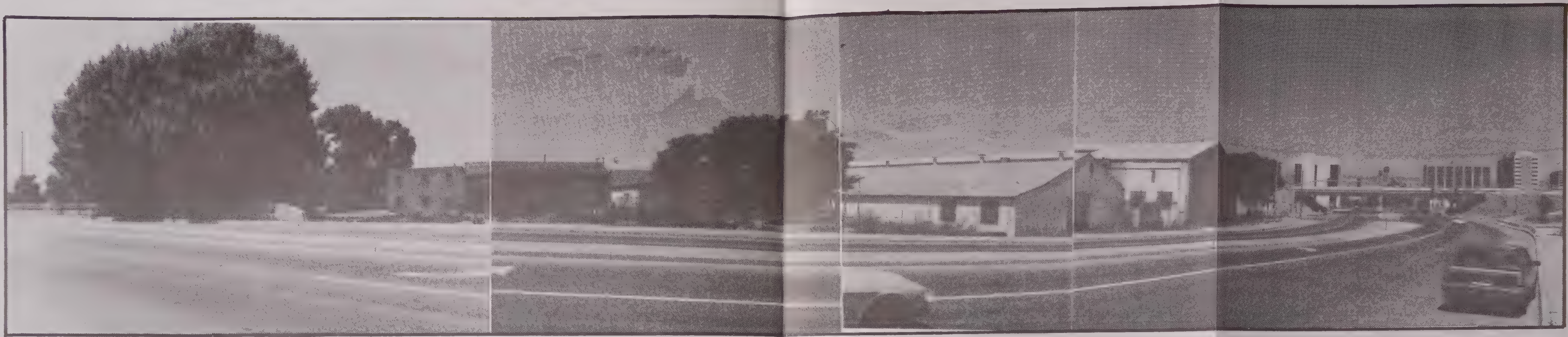


Photo was taken from the southside of (new) West Julian Street looking northeast at the project site. The photo shows the existing industrial uses on the site and the Guadalupe River Corridor (to the left).

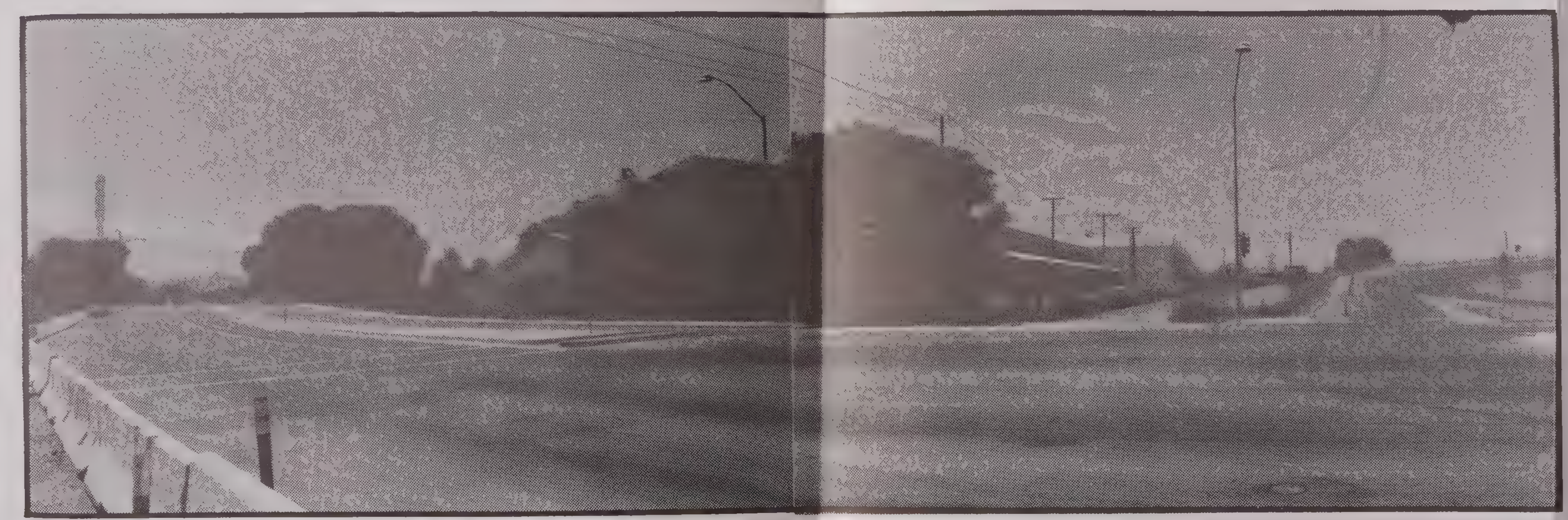


Photo was taken from the southside of (new) West Julian Street looking north at the project site showing the existing industrial use and the Guadalupe River.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE B-21

Photo was taken from the north looking south at the existing industrial use (FMC) on the project site. The Route 87 construction is in the foreground.

Photo was taken from the northwest looking southeast showing the existing industrial uses on and adjacent to the site.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE B-22

4. <u>View Corridors</u>

A view corridor is a vista spanning a distant area from a point of visual origin. View corridors described in this analysis originate from likely viewer vantage points and focus on the proposed project site. Existing view corridors associated with the project site include views for pedestrians and motorists traveling along Julian and Autumn Streets. Additionally, motorists utilizing the southbound on-ramp to State Route 87 are able to view the project site. Upon the completion of State Route 87, the project site will be very visible to southbound motorists traveling on this elevated roadway.

5. <u>View Opportunities</u>

View opportunities are those views available from the project site. Due to the project site's location, there are opportunities to view natural features. As previously stated, the Guadalupe River bisects the project site, providing views of the heavily-vegetated riparian habitat area. Beyond the State Route 87 right-of-way, southeasterly of the project site, are views of the high-rise structures associated with downtown San Jose. The balance of the view opportunities are similar to those described in the view corridor section.

POTENTIALLY SIGNIFICANT IMPACTS

1. <u>Visual Character of the Project Site</u>

Implementation of the proposed arena facility would alter the project site from its currently urbanized (i.e., commercial, light-industrial land uses) character to a single structure (approximately 65 feet above grade) facility with its associated auxiliary facilities and parking areas. As stated in the <u>Horizon 2000</u> General Plan, the City of San Jose desires to encourage the design of structures that are in scale with adjacent development and harmonized with the character of the area. Although the land use intensity of the proposed arena facility would be considerably greater than adjacent land uses in terms of height of structures and the ratio of floor area to site area, the arena facility would replace an existing industrial development which ranges in height from one- to three-stories (approximately 40 feet). The arena facility's location adjacent to the elevated State Route 87 and Southern Pacific Railroad rights-of-way (on the north and east) and the Gaudalupe River on the west would provide a sufficient buffer to adjacent uses and would be in conformance with the Horizon 2000 Urban Design Policy. Therefore, the proposed project would have a less than significant impact on the surrounding environment.

Design of Proposed Arena Facility

The proposed arena facility, as analyzed in this document, assumes a building approximately 350 feet wide by 460 feet long. The height of the structure (above existing grade) would be approximately 65 feet, and the footprint of the structure would cover approximately 3.7 acres.

At this time, there is no precise design plan for the proposed arena facility. Therefore, an evaluation of the visual suitability of the proposed facility should occur in later project design stages. However, the proposed facility would be a single structure in mass, height and scale that would differ from existing uses.

The design of the structure could provide a more contemporary, aesthetic facility as compared to the existing industrial uses. Conformance to the Horizon 2000 General Plan Urban Design policies would require the highest standards of architectural and site design for the development.

Proposed Landscaping and Vegetation

At this time, there is no formalized landscaping plan for the proposed arena facility. However, it is anticipated that the City of San Jose will conform to its policies of providing trees along public rights-of-way and throughout the proposed parking area. An evaluation of the visual suitability of the proposed landscaping, and the extent that it buffers the intensity of the proposed arena facility, would be included in the final site design in order to minimize visual impacts. The apparent bulk of the structure could be relieved through the building's design, including landscaping, to achieve a totally integrated affect. With the incorporation of the mitigation measures listed below, the project would have a less-than-significant impact on the surrounding environment.

Surface Parking Areas and Parking Structure Facilities

Implementation of the proposed arena facility would include the construction of surface parking areas and a three-level parking structure to be located immediately north of the proposed arena facility. The 265 parking spaces designated along the westerly side of the Guadalupe River will serve as interim parking until such time that the channel-widening improvements proposed by the Army Corps of Engineers are implemented.

The three level parking structure will accommodate 2,100 vehicles. This parking structure would have a pedestrian bridge that would connect with the proposed arena facility. However, design plans for this parking structure and the pedestrian bridge are not currently available. The visual suitability of these facilities could be developed to minimize visual impacts on the surrounding environment. This is seen as a less-than-significant impact.

2. View Corridors

Construction of the proposed arena facility would alter the existing view corridor opportunities of the project site. Views from Julian Street and State Route 87 would be altered from the existing character to one of a taller and more dense arena facility and its associated parking structure. However, due to the project site's location, these impacts would not be significant.

3. View Opportunities

View opportunities from the project site would be limited to the existing views that are currently available from the project site.

4. Light and Glare

The conceptual plans have been submitted for this project do not make it possible possible to evaluate the materials that will be incorporated into the exterior of the proposed arena facility. The use of glass siding and the addition of lighting standards for the proposed parking facilities have the potential to generate glare.

Although this could be a nuisance for adjacent property owners and could also distract incoming flights to San Jose International Airport, design elements could be incorporated into the project to reduce this to an acceptable level.

Therefore, with the incorporation of the mitigation measures listed below, the proposed project would have a less-than-significant impact on the environment from aesthetic resources.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse aesthetic resource impacts identified in this analysis.

- Site and aesthetic evaluation of the site design impacts should be conducted prior to the architectural review process utilized by the City of San Jose. Proposed landscaping, exterior building materials and compatibility with adjacent land uses should be considered in the review. **(Not Presently Included in Project)**

- The proposed arena structure should minimize glare and intrusion on adjacent properties by utilizing non-glare glass and requiring lighting standards in the parking areas to be focused onto the project site. Time clocks should be utilized to automatically shut-off lights after arena events are over, leaving only security lighting on beyond that time. **((Not Presently Included in Project)**

- Street trees should be planted along all public rights-of-way to minimize the intensity of the proposed arena facility. Additionally, all surface parking areas should be landscaped with a minimum of one 15-gallon tree for every six parking spaces (these trees are in additon to the required street trees). Landscaping plans should be approved prior to the implementation of the proposed project. **(Not Presently Included in Project)**

- Careful siting of the proposed arena facility, including setbacks and orientation with architectural treatment of the facility, should be included in order to reduce the visual impacts of the proposed arena facility. **(Included in Project)**

- In conformance with the City of San Jose General Plan Urban Design policies, the proposed arena facility should provide the highest standards of architectural and site design. **(Included in Project)**

L. ARCHAEOLOGIC RESOURCES

EXISTING SETTING

This analysis summarizes information collected from archival research and field visits conducted by Holman and Associates and Archaeological Resources Management during late 1986 and early 1987, during which a surface reconnaissance was conducted for historic and prehistoric resources for the larger Julian-Stockton Redevelopment Area, and during subsequent site visits for this specific project.

The project site encompasses approximately 14 acres of land which is currently covered by a combination of commercial buildings, pavement and parking lots and a small undeveloped park.

A literature review covering the project sites was conducted in January, 1987. During this research, it was discovered that there had been at least 11 separate archaeological field investigations conducted within the Julian-Stockton Redevelopment Area, several of which emcompassed the project site. Of these field investigations, two of the most important were conducted in 1974 and 1975 by Edwards, Edwards and Carrell, which covered all of the present project areas. As with all of the other reports, their findings were negative, based on a visual inspection and a limited program of backhoeing.

The principal contribution of these investigations was to demonstrate that aboriginal settlement patterns along the edges of what in the past had been a marsh area would have placed villages and/or campsites inside of the current project area, thus making the general area in and around the project sites archaeologically-sensitive. The archaeologists who have published their findings for the Julian-Stockton Redevelopment Area have reached the same general conclusions which are summarized below:

- Historic maps, accounts and findings of archaeological field work in the area of the Julian-Stockton Redevelopment Area indicate that in addition to the rivers and creeks running through the area, a low swampy area once covered a large but currently undefined portion of the Redevelopment Area.

- It has been demonstrated archaeologically that the river and creek banks and the margin of the marshes supported camp sites, special use areas and villages due to the presence of water and the abundance and variety of food sources. Any areas containing creek banks or marsh margins would therefore be considered archaeologically-sensitive.

- Information does not exist which would aid in defining the actual borders of the marsh in particular, thus making the entire project area uniformily sensitive until proven otherwise.

- Visual inspections of the surface inside the project area are not possible, due to the presence of buildings, pavement, cement or fill material covering almost all of the ground surface. Additionally, observations of subsurface excavations reveal the presence of silt, often several feet thick, covering the ground, thus further obscuring prehistoric resources.

- Archaeologists who have worked in this general area stress the need for some form of mechanical testing to determine the thickness of the silt layers and to locate buried archaeological deposits.

IMPACTS

Construction of the project would potentially have a significant impact upon archaeological resources. Although the prehistoric archaeological potential of the area is still unknown, the project site must be considered to have a high potential for containing archaeological resources (Holman, 1987). Subsurface archaeological testing of the site was not possible since access to any significant portion of the site was prevented by the nearly continuous covering of paving and buildings. The potential presence or absence of archaeological resources could not be established. Construction of the arena will require substantial grading excavation and earth work that would impact archaeological resources if any are present in the areas disturbed by construction.

MITIGATION MEASURES

Potential impacts to archaeological resources would be mitigated by conducting an archaeological testing program with mechanical excavation (i.e., backhoe) at appropriate locations inside of the project site's boundaries. The depths and areal extents of any deposits would then be mapped for planning purposes. The difficulty with conducting mechanical testing at this time is the lack of open space within the project boundaries to conduct such tests. As previously stated, streets and buildings cover a large portion of the project site. Mitigation based on the accidental discovery of prehistoric materials during construction, is not desirable both because significant damage can inadvertently be done to archaeological resources and because the logistics of testing at that time are quite difficult and can cause delays and be costly. It is more desirable to establish a testing plan in advance of any significant grading or site clearing. The testing plan would include augering or trenching at regular intervals in open lots or on streets to test for archaeological deposits. The plan would also include monitoring demolition if significant excavation for foundation removal is required in areas where archaeological resources are known or expected. Based on this initial testing, a determination could be made as to whether or not it would be necessary to conduct additional testing in areas now occupied by buildings, after the land has been acquired and buildings have been removed. If Native American cultural resources are encountered, qualified representatives of the Native Americans would be consulted to determine appropriate mitigation for impacts to the Native American cultural resources. One of the mitigation measures that may have to be considered is avoiding the Native American cultural resources (**Included in Project**).

M. HISTORIC RESOURCES

EXISTING SETTING

1. Previous Studies

Portions of the project site have been included in three major cultural resource field surveys. In 1975, a cultural resource assessment of the Julian-Stockton Redevelopment Area was prepared by Archaeological Consulting and Research Services Incorporated, and identified potential historic resources in the area. One of the resources identified is within the boundaries of the site (299 Bassett Street). Further assessment of this structure was recommended as specific project plans were proposed (Dietz, 1975).

A portion of the project site was included in TAZ Block 1962 of Basin Research Associates (1983) study for the Downtown San Jose, 1995 Environmental Impact Report. No specific resources were identified; however, due to the block's sensitivity for subsurface historical resources, target testing or monitoring of subsurface construction activities was recommended.

Another study of the Julian-Stockton Redevelopment Area was completed in 1986 by Archaeological Resource Management (Laffey, 1986). This study identified four potentially significant historical structures within the boundaries of the project site. They included:

- 299 Bassett Street: A two-story brick warehouse constructed by the John Stock Hardware Company in the late nineteenth century.

- 267 Old Julian Street: A two-story vernacular residence constructed between 1901 and 1911.

- 269 Old Julian Street: A two-story vernacular residence constructed between 1901 and 1911.

- 333 Old Julian Street: The Anderson-Barngrover plant that is today part of the FMC facilities (1909).

Recommendations specified that site/structure-specific research be conducted to evaluate the significance of each of the identified resources, in accordance with the standards of the California Environmental Quality Act, the National Environmental Quality Act and the City of San Jose's Historical Landmark Ordinance (Laffey, 1986).

Four of the potential historical structures were evaluated in a historical study of the Guadalupe River Park Master Plan (Cartier and Laffey, 1987). Two residential structures (440 and 460 Old Julian Street) and the Julian Street Bridge were considered architecturally and historically non-significant. The Greco/Mission Valley Cannery structure at 443 Howard Street was judged to be significant; however, preservation and/or restoration/rehabilitation were not recommended. This structure lies just outside of the project site boundaries and is not expected to be impacted by the proposed project.

None of the structures are currently designated as City landmarks or are listed on the National Register of Historic Places. Additionally, none of the identified structures are listed on the Historic Resources Inventory.

2. Structure Evaluation

Four potentially significant historical resources have been identified within the boundaries of the project site. An architectural description and historical summary is presented below.

299 Bassett Street

The physical evolution of the brick warehouse at 299 Bassett Street is not absolutely clear. This building first appears on the 1891 to 1901 updated Sanborn map. At that time, the 100-foot by 100-foot building was divided in half and labeled: A) "The John Stock Sones Ware Ho. For Genl. Hardw."; and B) "Mangrum and Otter Hard'w. Ware Ho." The John Stock warehouse is indicated as having two stories, a basement and two skylights, while the Mangrum and Otter warehouse also had two-stories, two skylights and no basement. However, the Sanborn map updated in 1911 indicates that Section B, the Mangrum and Otter portion of the building, is labeled "Hardw. Ware Ho." with one story and one skylight. These changes indicate that the reconstruction or remodeling activities. It seems likely that the building sustained damage resulting from the 1906 earthquake. Many of the buildings in San Jose were damaged or destroyed at this time. An examination of the facade of the structure indicates an irregular demarcation with a change in brick and mortar texture and color that would support this conclusion.

Presently, Section A of 299 Bassett Street is an unadorned rectangular brick structure. The central entrance has a wooden lintel and a horizontally-sliding

metal door. Over the lintel is an arch of three courses of endset brick. A painted sign on the rear of the structure indicates the building was once "Warehouse No. 2" for Hart's department store, which post-dates 1930. Interior features of the building include large wooden beams supporting the roof, and 12-inch plank hardwood floors.

Section B of 299 Bassett Street is presently a raised, one-story brick warehouse. It features a central entrance with a concrete ramp and vertical sliding door. The entrance is arched with four courses of endset brick, with a decorative course in bold relief framing the arch. The building has a flat roof with a simple cornice of two courses of brick around the parapet. The only interior feature of note is an original floor of 12 inch hardwood planks.

333 Old Julian Street

The Food Machinery Corporation (FMC) complex has been developed over a period of at least 70 years. The complex consists of one original building on the site and appears to have been extensively remodeled as architectural styles or company needs changed over its extended tenure at this location. The facade of the main Julian Street plant was remodeled to conform with currently-favored Spanish Colonial styles. The original Mission Revival facade was modified and fitted with windows to upper-story offices and the domed belvederes were removed from the two towers and replaced with hipped tile roofs.

267 Julian Street

This one and one-half story, front-gabled vernacular residence was constructed circa 1911. The house has clapboard siding and shingles under the gable eaves. A small stucco shop has been added to the front of the structure. Historic research indicated that this dwelling was constructed by Mrs. Mary Shepard as a rental unit and had a succession of tenants during its early years. The simple folk architectural style has been previously impacted by the commercial addition. The building has no significance either architecturally or historically.

269 Julian Street

This one and one-half story, front-gabled vernacular residence was constructed circa 1911. The house has clapboard siding and trilap bungalow siding under the gable eaves. Historic research indicated that this dwelling was constructed by Mrs. Mary Shepard as a rental unit and had a succession of tenants during its early years. The building has been abandoned for at least 17 years and is in a very deteriorated condition. The building has no significance either historically or architecturally.

POTENTIALLY SIGNIFICANT IMPACTS

Archival research and a surface reconnaissance of the project site indicated that there are four standing historic resources, two of which have some degree of historical or architectural significance. All of the standing structures within the project boundaries are scheduled for removal upon implementation of the proposed project. This removal will create moderate to significant impacts on the historic resources identified.

1. <u>299 Bassett Street</u>

The brick warehouse at 299 Bassett Street is considered a moderate to significant architectural resource. Implementation of the proposed project would necessitate the removal of this structure, which will result in a significant impact to this historic structure.

The historical significance of 299 Bassett Street lies in the fact that it is one of the oldest brick warehouses presently existing in San Jose. Additionally, it is the oldest warehouse still existing that was associated with the San Pedro Street freight station. As such, it represents early freight depot facilities as they existed in the late nineteenth and early twentieth centuries. This building was also associated with early hardware business firms of which no other structures remain. However, the building itself gives little indication into the operations of these businesses other than that they shipped and received goods via the railroad. The painted signs on the rear of the building (facing the railroad tracks) also have historical value as remnants of advertising methods or locational information for railroad crews for the purposes of merchandise shipping and receiving.

Architecturally, the building is a simple, unadorned style that is not unique, but probably very representative of the type of warehouse buildings that were constructed in this area. Of some limited interest is the fact that the building has undergone extensive repairs, probably related to damage suffered from the 1906 earthquake. As such, it provides an example of how disaster-related repair was made to brick buildings during the early part of this century. This also offers a comparison of building materials used both in the construction and reconstruction phases, offering insight into the changes in materials and construction techniques over time.

Brick warehouses constructed during this period (1890 to 1910) are rapidly disappearing from the industrial areas of San Jose. In the vicinity of the project site, there is only one other structure of this type (the brick San Jose Ice and Storage warehouse at 555 West Saint John Street). The continued existence of this structure is also threatened by redevelopment activities. As an example of early twentieth century industrial architecture, the Cold Storage warehouse is a more worthy example and thus more significant. However, if the loss of the Cold Storage warehouse is sustained through redevelopment activities, the value of 299 Bassett Street as a typical and/or representative example of this type of architecture will increase appreciably.

2. <u>FMC Complex- 333 Julian Street</u>

One of the buildings within the FMC complex of buildings dates back to 1909. However, the facade of this building has been extensively altered over time. A circa 1920 extension to the original building still exhibits the historic company name. The structure has great historical significance. Implementation of the proposed project would necessitate the removal of this structure. This would create a significant impact to the structure.

3. <u>Other Structures</u>

The other historical structures within the project boundaries were found to have no significant historical or architectural merit. The proposed removal of these buildings would not result in significant impacts.

MITIGATION MEASURES

Generally, mitigation alternatives for historic resources include preservation and project redesign and/or the moving of structures to other locations. In the case of unavoidable demolition, alternatives may include intensive archival/oral history research, photographic documentation and the salvage of architectural elements. The San Jose Historic Landmarks Commission should be kept informed and approve all actions involving the above-mentioned resources.

1. 299 Bassett Street

   Preservation and project redesign is considered the ideal mitigation for the brick warehouse at 299 Bassett Street. Relocation of a large, brick structure such as this is not a practical alternative. In the event project redesign or structure relocation do not prove to be acceptable alternatives, an application for demolition should be reviewed by the Historic Landmarks Commission. Mitigation alternatives in the case of demolition of the structure should include photographic documentation and archival research that includes an inventory of nineteenth and early twentieth century brick warehouse and factory buildings that remain within the City of San Jose boundaries. **(Included in Project)**

2. FMC Complex- 333 Julian Street

   These buildings are considered to be significant historic resources due to their association with the origins of a major industrial complex. However, due to the present impacted condition of the 1909 structure, the loss of this and the other stuructures themselves is not considered a sinificant impact and preservation is not recommended. Since the archival background on the company is extensive, no additional research is recommended. Therefore, mitigation recommended for the loss of this building is photographic documentation and the nomination of the site as a San Jose Historic Landmark Site. This would include the erection of a landmark plaque. **(Included in Project)**

N. RESIDENTIAL AND BUSINESS RELOCATION

EXISTING SETTING

1. Residential Uses

   As more thoroughly described in the Land Use (Section A) of this document, residential uses within the project site are limited to three single-family, detached unit. None of the residences are of sufficient age and/or character so as to be of potential historical significant (refer to Section M, Historic Resources, of this document). Both owner-occupied and rental residences are located within the project site.

   The residential uses within the site have, through the development of the surrounding areas for commercial and light-industrial businesses, became less compatible with adjacent uses with regard to the residential quality of life.

2. Business Uses

The project site contains approximately nine existing business operations. These include professional offices, warehouses, commercial and light-industrial uses. The businesses range in size from small, sole proprietorships occupying smaller land parcels and buildings and having minimal numbers of employees, to large branch operations of major corporations. In the latter category is the Pacific Gas & Electric Company Service Center.

Relocation Regulations and Procedures

Implementation of the proposed Arena Facility Project would require the City/Agency to comply with provisions of California Redevelopment Law and State Relocation Assistance Policies for relocation of the residents and businesses on the project site. Criteria for determining eligibility of displaced persons and businesses for assistance are contained in the California Housing and Community Development Guidelines. The Government Code, and amendments thereto, requires local governmental agencies to make in-depth analyses relative to the applicability of Relocation Assistance Programs/Policies as a result of acquisition of property for public projects (i.e., the San Jose Arena Facility).

1. Housing Relocation Assistance

Two forms of assistance are available to owners and tenants who must relocate. These are: 1) relocation advisory assistance in the form of counseling and aid in locating suitable replacement properties; and 2) relocation assistance payments to help pay for the costs of relocation.

The eligibility requirements for relocation financial assistance and the amounts available are: 1) homeowners/occupants (with 180+ days of residence) are eligible to receive up to $15,000; and 2) renters and homeowners occupants (with 90+ days of residence) may receive up to $4,000. When these amounts are insufficient to relocate to comparable housing or when there is a lack of comparable housing stock, a Last Resort Housing Plan is required and may allow the amount of financial assistance to exceed that established by the State Guidelines.

A public entity may issue a "Notice of Intent to Displace" to the owners/occupants of the area to be affected at the time of formation of plans showing a reasonable expectation of the need to acquire real property. This notice establishes many of the necessary eligibility requirements well before actual acquisitions of property and displacement. Such advance notice and planning enable the appropriate agency to accommodate any tenants' hardship situations or other unique conditions which do not conform to the specific parameters of the applicable policies, guidelines or operating methodologies.

The persons to be displaced have the right to participate in the review of the relocation plans and the ongoing Relocation Assistance Program.

Agencies acting under the jurisdiction of the State Guidelines, are required to offer a minimum of three (3) comparable replacement dwellings for consideration by the displaced residents.

2. <u>Business Relocation</u>

Relocation Assistance is available to businesses which meet the following criteria:

- The business occupies the subject property at the time the City makes a written offer of purchase.

- The business vacates the property and/or moves personal property from the site as a result of project implementation after the first written offer to acquire.

- The real property is purchased by the City as a portion of the Redevelopment Project Implementation.

There are two (2) types of aid available to businesses which must be relocated due to Redevelopment Projects or Programs. These forms of aid include the Relocation Advisory Assistance (Counseling, replacement property location search assistance) and financial assistance to help defray the costs of relocation.

To be eligible for assistance, a commercial operation qualifies as a "business" if it is conducted primarily:

- For the purchase, sale, lease/or rental of real/personal property or the manufacture, processing or marketing of commodities, products or any other personal property.

- For the sale of services to the public.

- By a non-profit organization which has established its non-profit status per applicable Federal or State Regulations.

- Solely for the purpose of a moving expense payment; for assisting in the purchase, sale, resale, manufacture, processing, or marketing of products, commodities, personal property, or services by the erection and maintenance of an outdoor advertising display, whether or not such a display is located on the premises on which any of the above activities are conducted.

The Redevelopment Agency of San Jose applies and/or interprets the Guidelines, on a case-by-case basis, in a timely manner for businesses within the project site.

POTENTIALLY SIGNIFICANT IMPACTS

1. <u>Residential Relocation</u>

Implementation of the proposed Arena Facility Project will dislocate the residents occupying the dwellings in the area. The proposed Arena Facility does not allow for any residences within the boundaries of the project site. Accordingly, all of the persons currently residing in the project boundaries will have to relocate elsewhere.

The effects of the implementation of the project upon those structures with potential historical significance are discussed in PART THREEE SECTION I., M. HISTORICAL RESOURCES, of this document.

The project proposal indicates that it will be necessary to acquire the properties in the project site for development purposes. Such acquisition may be either by negotiated purchase or condemnation.

As each dwelling's residents are relocated, there will be a concomitant, incremental increase in the demand for comparable replacement housing. This demand may be first experienced by residential neighborhoods near the project site. However, the involved Agency is not restricted to geographic range, for the relocation of replacement housing.

Since only three residences will be relocated by this project, the impact of the project is less than significant by CEQA standards.

2. Business Relocation

The existing business operations within the boundaries of the project site will be dislocated from their established locations as a result of implementation of the proposed Arena Facility. Implementation of the proposed Arena Facility Project could, on a worst-case basis, create the need for comparable operating facilities for all of the approximately nine businesses located within the project site. As these firms may have established clientele in the immediate area, their relocation needs would include comparable facilities close to their current locations, thereby impacting the available commercial space in the project vicinity.

Not all of the existing businesses will find it financially feasible to relocate, and may cease operations. These alternatives could, for an indeterminate time period, incrementally increase the unemployment levels of the City, County and region.

The impact of the project would be significant by CEQA standards. While mitigation measures can reduce the impact, the project impact will nonetheless be significant and unavoidable.

MITIGATION MEASURES

1. Residential Relocation

The City/Agency should prepare a relocation plan in accordance with all applicable laws. The residential requirements of each homeowner and/or tenant will be evaluated on a case-by-case basis to ensure the implementation of the best feasible methods of Relocation Assistance. **(Included in Project)**

Relocation Assistance available from the Redevelopment Agency and City of San Jose should be two-fold:

- A Relocation Specialist should provide assistance in locating new living accommodations. The Specialist should help the eligible relocatees, who

are to be given priority, investigate housing subsidy programs, public housing, FHA repossessed dwellings and current property listings (both for sale and for rent) and,

Relocation Assistance payments should be available to persons displaced by the implementation of the proposed project. Such payments may be in the form of:

- Reimbursement of moving expenses and/or an across-the-board displacement allowance payment;

- A rental replacement payment intended to make up the difference between the existing property's rent and the rental payment required for replacement housing, and

- Replacement housing cost payments for homeowner-occupants. Such funding is intended to defray the costs incurred in the purchase of a comparable, decent, safe and sanitary residence. **(Included in Project)**

The Redevelopment Agency has earmarked 20 percent of the available tax increment funds for use for low/moderate-income housing to help mitigate the impact of any residential housing shortage. **(Included in Project)**

Given the small number of residential units impacted, the impact of the project is less-than-significant and is further reduced by implementation of these mitigation measures.

2. Business Relocation

The City of San Jose and the Redevelopment Agency should administer the Relocation Assistance Programs, available to displaced businesses within the project site.

These programs will be based upon existing State Relocation Assistance Policies. Each displaced business operation will be evaluated on a case-by-case basis to ensure the most appropriate course of action to fulfill that particular business' needs. **(Included in Project)**

The Redevelopment Agency of San Jose should assist each business into obtaining and becoming established in a suitable replacement location. **(Included in Project)**

Despite these mitigation measures which can reduce the project impact, the impact of the project on existing businesses is a significant and unavoidable impact.

O. ENERGY CONSUMPTION

EXISTING SETTING

In order to provide a better basis for comparison, this report follows the accepted practice of assessing energy usage in terms of the thermal value or heat content of the basic resource which is consumed (California Energy Commission, 1986). A Btu is the amount of heat needed to raise the temperature of a pound of water by one degree Farenheit.

The project site is currently in mixed commercial, light industrial and residential land uses. The Food Machinery Corporation (FMC) plant, located within the project site, accounted for the bulk of the electrical power utilized on the project site. However, the plant was closed in April, 1987, and energy usage has dropped dramatically. Table B-29 delineates the existing energy consumption for the project site (these numbers were compiled prior to the closure of the FMC plant).

TABLE B-29
EXISTING ENERGY CONSUMPTION

USE		YEARLY AMOUNT	TBtu's/YEAR
Project Site			
	Electric	1,989,000 kw-hours	20,350,000
	Nat. Gas	21,290 therms	2,129,000
San Jose Residences			
	Electric	1,370,000,000 kw-hours	14,000,000,000
	Nat. Gas	134,000,000 therms	13,400,000,000
			27,400,000,000
All Other San Jose Users			
	Electric	2,620,000,000 kw-hours	26,800,000,000
	Nat. Gas	70,100,000 therms	7,010,000,000
			33,810,000,000
Total for San Jose			
	Electric	3,990,000,000 kw-hours	40,800,000,000
	Nat. Gas	204,100,000 therms	20,410,000,000
			61,210,000,000

Source: MO'C Physics Applied, 1987

Table B-30 estimates the direct energy use for electricity and natural gas at the proposed arena facility (Sink-Combs-Dethlefs, 1987). The estimates are based on the assumtion that there would be seasonal use of an ice rink for hockey (which would add approximately 20-percent to the electricity use).

TABLE B-30
ESTIMATED ENERGY CONSUMPTION FOR SITE B

FORM	YEARLY AMOUNT	TBtu/YEAR
Electricity	6,000,000 kw hour	61,400,000
Natural Gas	110,000 therms (9 mil. cu. ft)	11,000,000
Gasoline	227,000 gallons	32,700,000
		105,100,000

Source: MO'C Physics Applied, 1987

It should be noted that in deriving the gasoline estimates, it was assumed that there would be 155 events per year, with an average attendance of 11,300 persons, an average vehicle capacity of three persons and an average trip length of seven miles with an average vehicle efficiency of 18 miles per gallon.

The estimates in Table B-30 show that the proposed arena would use approximately 3.0 times more electricity than existing users and approximately 5.2 times the natural gas. Nonetheless, existing facilities of the Pacific Gas and Electric Company would be adequate to meet the demand created by an arena facility (Laberton, 1987).

It is only possible to speculate about secondary effects which could affect the significance of the estimates presented above. For example, the existing residences and businesses would be displaced with the implementation of the proposed project; consumption by these users would not be eliminated. The transportation component of the existing energy use has not been estimated; existing traffic would also be displaced to other roadways. Organizations presenting events, service firms and vendors would also account for some secondary energy use not included above.

Conversely, the significance of the transportation component of the energy use estimate is less than significant when it is considered that the proposed arena's patrons may go on some other outing for some other entertainment if the arena was not constructed - perhaps to a facility more remote from there residences than the proposed arena location.

Therefore, the proposed project would not have a significant impact on energy resources.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse energy resource impacts identified in this analysis.

- Whereas such mitigating measures of environmental effects as noise walls, air pollution control devices and intersection improvements add cost to a development, energy conservation saves money. It may therefore be appropriate for the City of San Jose to require that energy-related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed structure. **(Not Presently Included in Project)**

- For example, the use of glass has a potential impact on energy use, as well as on the visual and aural aesthetics and on the cost of construction. Glazing affects energy consumption through its effect on radiative heat loss and solar heat gain. Natural lighting diminishes the need for artificial illumination. **(Not Presently Included in Project)**

- It has been previously stated that the hockey rink would add on the order of one million kilowatt-hours per year to electricity consumption. The associated electricity cost of $50,000 to $100,000 would represent $2.50 to $5.00 per year for each of the 20,000 seats. Deletion of the hockey rink would reduce the projected annual electicity use by as much as 20 percent. **(not Presently Included in Project)**

- For transportation impacts, the Santa Clara County Transportation Agency may provide special runs of buses and light rail vehicles to accommodate patrons at major events. **(Not Presently Included in Project)**

P. HAZARDOUS MATERIALS

EXISTING SETTING

1. Land Use

The project site is situated in an industrial district of the City of San Jose. On-site facilities include abandoned commercial structures, a Food Machinery Corporation complex, automotive-related businesses and commercial retailers. A Southern Pacific Railroad right-of-way is located off-site along the northerly boundary of the project site.

2. Industrial Activity

Food Machinery Corporation

Food Machinery Corporation (FMC) activities began at 333 Julian Street in 1919. Industrial uses have included painting, degreasing operations, machining, storage of gasoline and fuel oil, a brass and cast-iron foundry and production of the P-7 amphibious military vehicle (Aro, 1987). According to FMC personnel, no explosives, fertilizers or PCB-containing materials have been used at 333 Julian Street (Aro, 1987). Although both above-ground and underground tanks have been

used for the storage of hazardous materials, no underground pipes have been associated with the tanks. The facility is currently used as a warehouse; in 1986, all of the production machinery, hazardous materials and wastes previously used were removed from this facility (Aro, 1987).

Several above-ground and underground tanks on the site were used to store hazardous materials. Available information indicates that above-ground tanks were located on exposed top-soil. Underground storage tanks were installed without any secondary containment protection (Aro, 1987). The State Water Resources Control Board (SWRCB) files contain no information indicating the presence of underground storage tanks at this facility (Moreno, 1987). Table B-31 is a summary of the tanks installed at the FMC facility.

In 1983, FMC initiated a preliminary study to assess ground contamination at the 333 Julian Street facility. EMCON, an environmental consulting firm, was contracted to evaluate potential areas of contamination. According to FMC personnel, traces of hydrocarbons were detected at the facility; however, the concentration of hazardous materials were found generally to be significantly lower than the Applied Action Levels designated by the Department of Health Services (Aro, 1987). Although FMC has an extensive history of hazardous material releases at their 1125 Coleman Avenue complex, files at the Regional Water Quality Control Board (RWQCB) do not reveal any releases of hazardous material at 333 Julian Street (Regional Water Quality Control Board, 1987).

The EMCON study reported that leakage of bunker oil from an underground concrete storage tank contaminated approximately 2,250 cubic-feet of soil. Although bunker oil was detected at a depth of ten-feet, samples from monitoring wells did not reveal contamination of the groundwater. The tank was subsequently removed in 1983. Clean-up of the contaminated soil, however, has not been completed (Aro, 1987).

The 1986 closure of FMC operations at 333 Julian Street entailed the clean-up of supplies, storage areas and other areas of the facility. In the course of the clean-up activities, a number of waste materials were generated and removed for disposal. On the basis of the FMC manifest records compiled since November 19, 1980, Table B-32 provides a list of materials removed from the facility.

International Technology Corporation

Prior to 1986, a release of hydrocarbons from a 20,000-gallon underground storage tank required the removal of three underground storage tanks and associated contaminated soils from the International Technology (IT) Corporation facility. On July 23, 1985, the IT Corporation submitted a site closure plan which was approved by the Department of Health Services (DOHS) on September 15, 1985. Based on site visits and document reviews, the DOHS determined that the IT Corporation completed the site clean-up activities at and around 469 Howard Street in a satisfactory manner (Hoenig, 1987).

San Jose Foundry (525 West St. John Street)

On March 9, 1987, an exploratory well detected leakage from an on-site 550-gallon underground gasoline fuel storage tank (City of San Jose, HAZ-MAT

TABLE B-31

FMC STORAGE TANKS

Tank Contents	Quantity	Volume, Gallons	Approximate Installation Date	Approximate Removal Date
Gasoline (a)	1	5,000	1960	1983
Gasoline (a)	1	5,000	1979	1983
Diesel Fuel (a)	1	250	N/A	1983
Bunker Oil (a)	1	500	N/A	1983
Halogenated Organic Solvents (b,c)	1	500	1940's	1983
Cutting Oil (b)	1	500	1940's	1983

(a) Underground storage tank
(b) Aboveground storage tank
(c) The halogenated solvents include 1,1,1 - Trichloroethane (TCE)
N/A - Not Available
SOURCE: Food Machinery Corporation (1987)

TABLE B-32

DISPOSAL OF MATERIALS UPON CLOSURE OF THE FMC FACILITY

Material	Quantity	Destination	Approximate Disposal Date
Paint Sludge	1,700 gallons	Off-Site Landfill(s)	3/82-1/82
Miscellaneous Wastes (a)	7,000 gallons	Off-Site Landfill(s)	8/82-3/83
Phosphoric Acid (b)	55 gallons	Off-Site Landfill(s)	3/82
Magnesium Waste Chips	40,000 pounds	Off-Site Landfill(s)	9/81-2/83

(a) Miscellaneous metallic and cleaning bath wastes including aluminum and steel chips, cutting tool lubricants, etc.
(b) Acid concentration of 25%.
SOURCE: Food Machinery Corporation (1987).

Program, 1987). Spillage was attributed to tank overfill, resulting in contamination of the soil (vadose zone). However, the RWQCB had no knowledge of the quantity released, source of tank failure or beginning discharge date (Regional Water Quality Control Board, 1987). At this time, discharge has stopped and removal of the tank has been proposed by the facility owner. This metal foundry is a potential source of ground contamination due to heavy metal residues present in slag waste material. Aerial photographs taken in 1971 indicate active production operations. No underground storage tanks for this firm are registered with the SWRCB (Moreno, 1987).

Other Industrial Activities

Several abandoned commercial structures exist along the northerly boundary of the project site. The facilities include machine shops, paper printing mill, food distributer and businesses of unknown activity. Although the potential for ground contamination exists, agency files do not indicate handling, storage or release of hazardous material at these facilities (Regional Water Quality Control Board, 1987).

3. Non-Industrial Activities

A few residential structures exist within the project site, with the majority being located in the vicinity of Old Julian Street, west of the Guadalupe River. No hospitals, schools, retirement homes or other sensitive land uses exist within one-half miles of the project site.

POTENTIALLY SIGNIFICANT IMPACTS

The regulation of hazardous materials has grown substantially since 1970. Many State and Local programs are still being developed. Although many potential sources exist, information regarding leakage and storage of hazardous material is generally limited to recent activities and large-scale operations.

In June, 1987, the City of San Jose Fire Department's Hazardous Materials (HAZ-MAT) Program submitted to the San Jose Department of City Planning a site assessment study for the proposed San Jose Arena project. Preliminary results indicate several underground storage tanks and incidents involving ground contamination associated with the proposed sites (confirmed from other sources) were not discussed in the study. Although the study revealed several unrelated incidents associated with the release of hazardous materials within the project site, no information was provided to indicate the quantity, source or proximity of the ground contamination at the site. Also included within the study are documents which confirm the release of xylene, gasoline and bunker oil from at least seven underground storage tanks within the proposed arena site which have not otherwise been confirmed by agency documents, corporate assessment studies, personal interviews or site visits. Although the study does not provide the location, quantity released, length of service, construction material or current status associated with the tanks, soils testing and identification prior to development would confirm the presence or absence of chemical contamination.

1. <u>On-Site Hazards</u>

Public Exposure

Construction of the proposed arena would likely increase the level of acute exposure from existing hazards. Public access within the project site is currently limited to local employees, commuter traffic and local residents.

The proposed project would probably reduce the chronic exposure level from existing hazards. The number of employees currently at the site is likely in excess of those required to maintain the proposed arena operations. Relocation of existing residential housing would further reduce, on a long-term basis, the number of individuals exposed to hazardous substances. Public occupancy would be short-term, typically less than four-hours. Non-public occupants such as administrative, maintenance, sanitation and security personnel would probably be on the project site approximately 40-hours per week.

Hazardous Materials

The proposed arena is not expected to expose occupants to new sources of hazardous materials. Rather, project construction would reduce the activity of existing generators, handlers and users of hazardous materials.

Many potential sources of hazardous materials exist within the project site. The 1983 EMCON study reported the leakage of bunker oil from an underground concrete storage tank will require the removal of approximately 2,250 cubic-feet of soil (Aro, 1987). The IT Corporation property presents a potential source for ground contamination (see Existing Setting section). Although the DOHS has declared the property as clean, the extent of diesel fuel dispersion to adjoining parcels is unknown. Due to the high mobility of organic pollutants in sand, ground clean-up procedures from contaminated soil may require extensive excavation of these locations. Both of these facilities are situated within 0.1 miles of the proposed arena foundation.

Utility Lines

The proposed project would require relocating an extensive underground network of PG&E natural gas and electrical transmission lines. Relocation of the lines would require extensive excavation within the project site, and subsequent re-installation on nearby land. The Pacific Gas & Electric Company recently submitted an economic feasibility study to the City of San Jose with regard to the measures required to relocate existing utility lines.

Fire Hazards

A large audience in attendance at the proposed arena would increase the potential fire hazards due to increased arena activity, increased energy requirements and potential for human error. Handling and storage of flammable materials at the arena would be limited to maintenance activities.

Emergencies and Evacuations

The proposed arena would have an Emergency Contingency Plan that would outline emergency procedures, including: arena evacuation, police and fire response and medical care facilities.

2. Off-Site Hazards

Airborne Releases

In-bound aircraft to the San Jose International Airport could occasionally expose arena occupants to excessive levels of carbon monoxide (CO) and respirable particulate matter under ten microns. Potential impacts of air pollutants on future air quality and sensitive land uses are addressed elsewhere in this report.

No petroleum refineries or chemical producers exist within two miles of the proposed arena which could present an immediate hazard on project occupants through accidental release of hazardous pollutants. However, exposure to hazardous materials could result from accidents involving heavy trucks transporting volitile hazardous materials along local and adjacent roadways.

Utility Lines

In the event of an earthquake, off-site gas mains may pose a fire hazard to occupants utilizing the proposed arena.

Transportation Hazards

The absence of accident rate data for the roadways providing access to the project site prevents a quantifiable analysis of the potential for traffic accidents involving hazardous materials. However, the 1986 State-wide accident rate average for injury and fatality-related automobile accidents is 0.52 per million vehicle miles (MVM). The 1986 average for all automobile accidents (property damage, injury and fatality) is 1.03 MVM, State-wide (Environmental Science Associates, 1986).

A Southern Pacific Railroad right-of-way is situated within 100-feet of the northerly boundary of the project site. During an accident that involved the release of volatile hazardous materials, the predominately northwesterly winds could quickly transport hazardous emissions from rail cars towards the proposed arena site.

In-bound commercial air traffic to the San Jose International Airport passes directly over the project site. As a result, the arena patrons could be exposed to excessive noise levels and engine exhaust emissions.

Hydrology

The influence on the project site from off-site ground contamination resulting from subsurface transport of pollutants is unknown. Although the Santa Clara Valley Water District monitors the area for well contamination, subsurface flow direction and water table level, such information is not readily available to the public.

The proposed project would be designed to prevent hazardous material contamination and therefore, insofar as technology and methods exist to reduce impacts to below a level of significance and all contamination will be cleaned up, the proposed project would not have a signifcant impact on the environment.

MITIGATION MEASURES

The following are mitigation measure included in the project that could reasonably be expected to reduce the adverse hazardous material impacts indentified in this analysis.

- Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. Prior to 1980, regulatory agencies lacked information regarding handling, transportation and storage of hazardous materials. As a result, site assessment would require sampling at several potential sources of ground contamination within each site. **(Included in Project)**

- A site-specific plan for clean-up activities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Included in Project)**

- A closure plan would be required for determining the final dispostion of the project site. **(Included in Project)**

- Any site-specific clean-up of contamination would be required to the satisfaction of the Department of Health Services and the Regional Water Quality Control Board. **(Included in Project)**

Q. AIRCRAFT SAFETY

EXISTING SETTING

The project site is located approximately two miles southeasterly of the San Jose International Airport. Aircraft using Runway 30-Left make their final approach along a line which crosses directly over the project site. The interrelationship between the project site and the airport, from an environmental standpoint, is defined by potential noise and safety/air space conflict factors. The importance of these airport operational factors is given further credence by the fact that portions of the land area between the project site and the airport boundary are being acquired in order to satisfy State noise criteria, as well as Federal Aviation Administration "Clear Zone" requirements.

The conditions relating to aircraft noise effects experienced on the project site are discussed in further detail in PART THREE, SECTION I., F. COMMUNITY NOISE, of this report.

1. Regulatory Agencies

The Federal Aviation Administration (FAA) is the regulatory agency for aircraft operations, safety and air space use. The FAA regulations, Part 77,

require the review of development plans for any project which may affect airport operations, either by intrusion into air space or incompatible land uses. The criteria contained in FAA, Part 77, was used by the City of San Jose, and adopted by the San Jose City Council, to develop a map indicating the air space obstruction surfaces for the San Jose International Airport. The elevations shown are maximum suggested building heights which would still allow for safe clearance by overflying aircrafts. Should any proposed structures exceed the FAA height limit restrictions, the development proposal would be reviewed by the FAA to ascertain the existence, if any, of a hazard to navigation.

After the filing of a "Notice of Proposed Construction or Alteration", the proposed project would be subject to review by the FAA if the project plans called for:

- A development which would include building elevations in excess of 200-feet above the ground surface; or

- A project which would contain elevations greater than an arbitrary height calculated by floor area ratios, based upon the project area's distance fronm the runways and the runway's length.

For the San Jose International Airport area, a "Notice of Proposed Construction or Alteration" must be filed with the FAA for any development proposal located within 20,000-feet of the nearest runway, or when a proposed structure would penetrate a theoretical slope plane of 100-feet (horizontal) to one-foot (vertical).

2. Site Characteristics

The project site is situated at an elevation of approximately 80 feet above mean sea level (Lewis, 1987). As dictated by the City of San Jose map controlling building heights in the project area, estimated maximum elevations at the project site is approximately 282-feet above mean sea level. By subtracting the existing elevation of the project site, it is estimated that structures on the project site cannot exceed a height of 202-feet above grade (Lewis, 1987).

3. Aircraft Overflight Clearances

Aircraft overflight clearances of the project site are most consistent during the final approach to Runway 30-Left. During this phase of the landing cycle, the aircrafts are descending along a 35:1 slope. In the vicinity of the project site, approaching aircraft would be a minimum of 221 feet above ground level.

Aircraft departing from San Jose International Airport would overfly the project site approximately 10-percent of the time, due to the prevailing northwesterly winds. Although the higher power settings required for take off/climb out produce higher perceived noise levels, the aircraft (particularly commercial jets) are at a greater altitude above the project site. A precise elevation is not available, as the aircraft altitude is based upon a number of factors (i.e., load, atmospheric conditions, zero flap speed required for power reduction for noise abatement). A general rate of climb forecast would provide for climb angles as steep as 7:1. Using this figure, an aircraft taking off could be as much as 1,100 feet above the project site during normal operations.

4. Record of Accidents at San Jose International Airport

According to the Airport Operations staff, the following are the more significant accidents occurring in the vicinity of San Jose International Airport (Howard, Needles, Tammen and Bergendorf, 1986):

- Mid-air collision, Cessna 172 and Cessna 310; accident occurred east of Hyatt House (aircraft fell at the Hertz operation on North First Street); three persons killed (four to five years ago).

- Mid-air collision, Cherokee 180 and Cessna 172; San Jose Main Library was the location of the accident; one killed, two injured (four to five years ago).

- Cessna 210, crashed in Great America parking lot; ran out of fuel (seven to eight years ago).

- Cessna 150, ran out of fuel, came down in Columbus Park; accident occurred on approach; no injuries (seven to eight years ago).

- Cessna 150, engine failure; landed on Emory Street; no injuries.

- Cessna 172, engine failure, caught on high tension wires at the Southern Pacific Railroad tracks; no injuries (12 to 15 years ago).

- Twin Beech (B-50) ran out of fuel, crashed at National Guard Armory on Interstate 880; no injuries (15 years ago).

POTENTIALLY SIGNIFICANT IMPACTS

1. Accident Potential

The analysis of aircraft accident potential was applied to both air-carrier aircraft and general aviation aircraft. In the analysis that follows, air-carrier aircraft are defined as aircraft of 30 or more seats operated under Part 121 of the Federal Aviation regulations. General aviation aircraft include high performance, jet-powered aircraft such as the Learjet, Cessna Citation and Gulfstream II and III; commuter airline aircraft, including Beech 99s (15-seats) and Embraer Bandeirantes (18-seats); and, light, propeller-driven aircraft. Data on accidents and on typical flight tracks use the same classification. In terms of loss of life or property to those on the ground resulting from an accident, the risk is greater for an air-carrier aircraft than for a general aviation aircraft. However, the size, speed and fuel capacity of the larger aircraft in the general aviation category is such that these must be considered in establishing areas for protection (Howard, Neddles, Tammen and Bergendorf, 1986).

The data on aircraft accidents around airports, and the development of specific criteria for acceptable land uses in areas susceptible to aircraft accident is sparse. The primary sources of data on accident locations examined are (Howard, Needles, Tammen and Bergendorf, 1986):

- Airline Pilots Association (ALPA);
- National Transportation Safety Board (NTSB); and
- Military.

Distribution of Aircraft Accidents

The latest work by the ALPA was published in 1978. It evaluated the location of 125 air carrier accidents at civilian airports between 1964 and 1977, with respect to the runway ends (see Figure B-23). Seven accidents occurred within 2,000-feet of the landing threshold, and 40 accidents occurred within 2,000-feet of the departure end of the runway. Of those evaluated, the accident that was most-remote from the runway end was 3,300-feet beyond the departure end of the runway. Thirty-percent of the air carrier-related accidents related to landings and 12-percent to takeoffs (Howard, Needles, Tammen and Bergendorf, 1986).

The NTSB Annual Air Carrier Accident Report for the period 1968 through 1978 described 502 air carrier aircraft accidents. Accident locations were as follows (Howard, Needles, Tammen and Bergendorf, 1986):

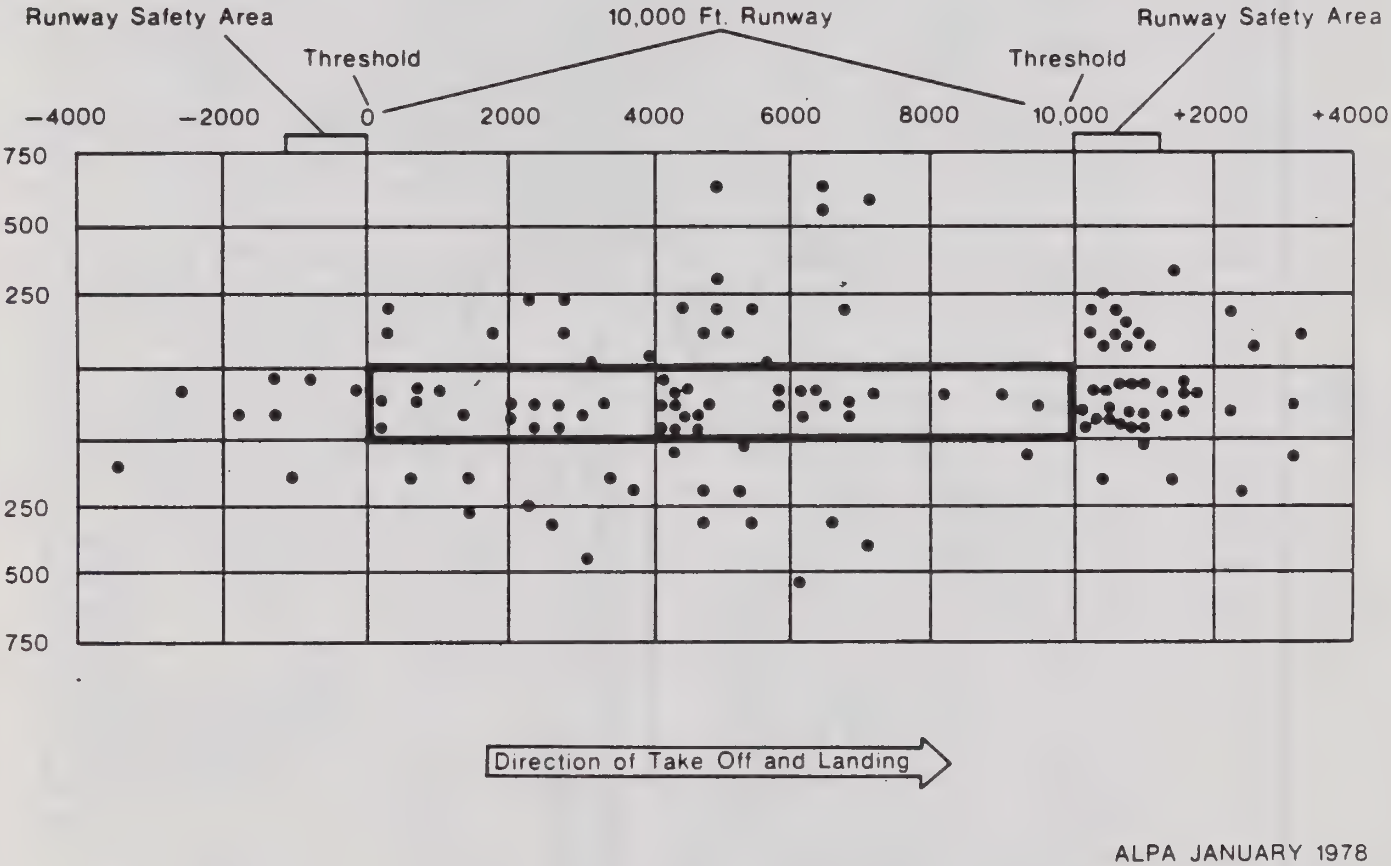
- 248 (49-percent) were on-airport;
- 17 (three-percent) were in the pattern;
- 7 were within 0.25-miles of the runway ends;
- 3 were between 0.25- and 0.5-miles of the runway ends;
- 2 were between 0.5- and 0.75-miles of the runway ends;
- 5 were between 0.75- and 1.0-miles of the runway ends;
- 5 were between 1.0- and 2.0-miles of the runway ends;
- 5 were between 2.0- and 3.0-miles of the runway ends;
- 3 were between 3.0- and 4.0-miles of the runway ends;
- 5 were between 4.0- and 5.0-miles of the runway ends; and
- 202 (40-percent) were more than 5.0-miles from the runway end.

Fifty-six percent of the reported accidents occurred on the airport or off the airport and within one mile of the runway ends. Eighty-nine percent of the reported accidents occurred on the runway, or off of the runway and more than five miles from the runway ends. The series shows a concentration of accidents on the airport (49-percent), within one mile of the runway ends (three-percent), and in the pattern (three-percent), with a major reduction beyond one mile from the runway ends. The most recent NTSB analysis of United States air carrier accidents (1964 through 1981) shows the same concentration of accidents on the airport (52-percent) and within one mile of the airport (six-percent), with a significant reduction in accidents per mile beyond one mile.

The NTSB analysis, supported by that of the ALPA, provides the best available information on the location of air carrier aircraft accidents relative to runways. The incidence of accidents is found to be concentrated in a rectangular area, 1,000 feet wide by 5,000 feet long, with a marked tailing-off of events beyond one mile from the runway end. Accidents to general aviation aircraft (including high-performance, jet-powered and commuter aircraft) show a similar concentration in the area within one mile of the runway ends.

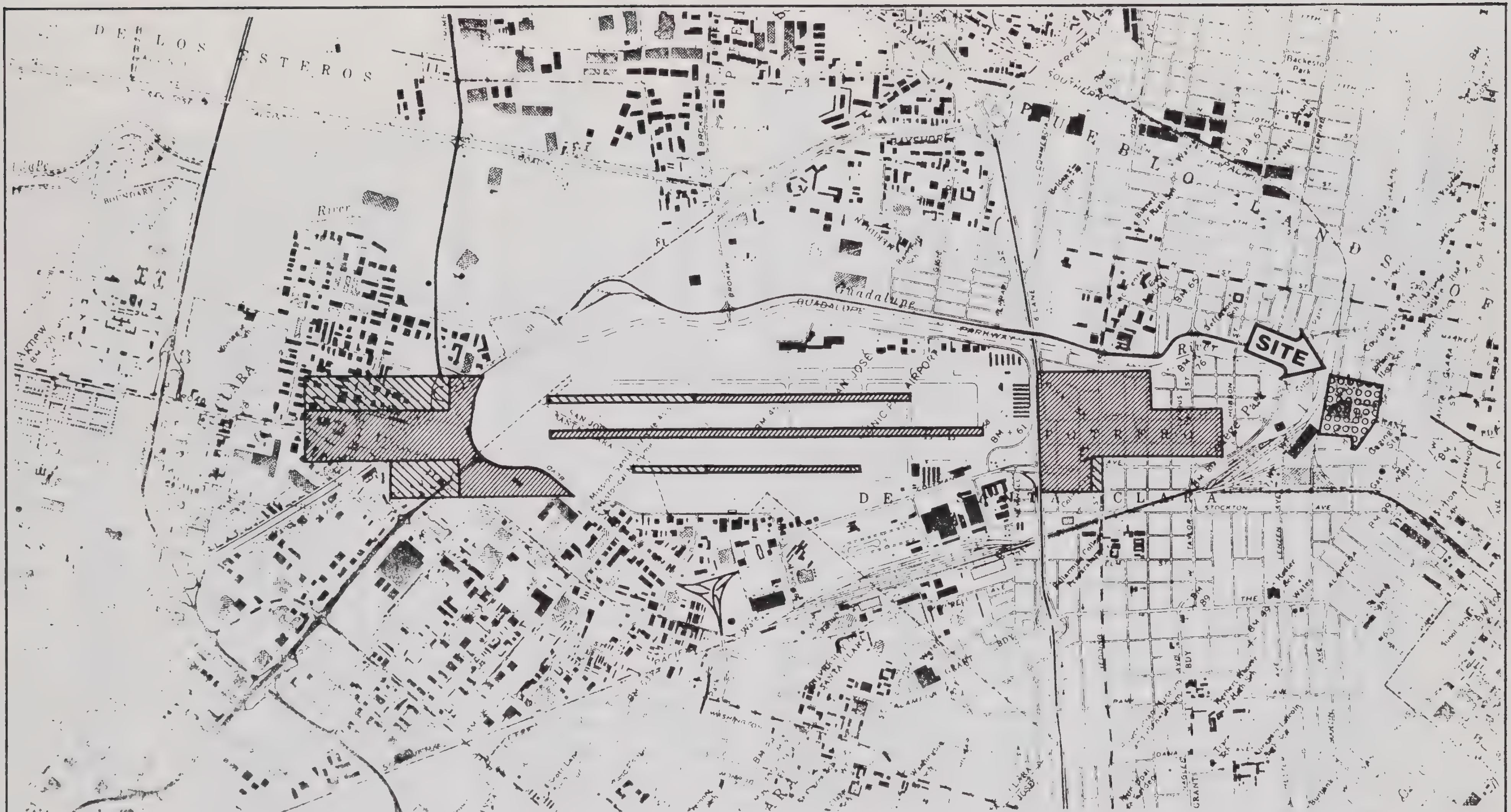
The application of these 1,000 foot by 5,000 foot rectangles to the runway ends is shown in Figure B-24. As can be seen, the project site is not located in an accident potential area.

Therefore, although there exists the potential for an accident, there also exists data, as well as safety procedures and operations, that reduce this impact to a nonsignificant level.



SOURCE: CITY OF SAN JOSE(1986)

AIRLINE PILOTS ASSOCIATION ACCIDENT ANALYSIS FIGURE B-23



ACCIDENT POTENTIAL AREAS

EXISTING RUNWAYS

PROPOSED EXTENSIONS

SOURCE: CITY OF SAN JOSE (1986)

AIRCRAFT ACCIDENT POTENTIAL AREAS	N SCALE 2000 0 2000	FIGURE B-24

2. Height of Proposed Structure

As stated in the PART ONE, PROJECT DESCRIPTION, the proposed arena facility is anticipated to be approximately 65 feet in height. The proposed height is in conformance with the allowable height (217 feet) on the project site, as mandated by FAA Regulation, Part 77. Accordingly, the proposed project would not cause conflicts with normal visual flight rules operations at the San Jose International Airport.

MITIGATION MEASURES

The following are mitigation measures included in the proposed project and other measures that are not included but could reasonably be expected to reduce the adverse aircraft safety impacts identified in this analysis.

Any proposed development on the project site would be subject to evaluation by the FAA, subsequent to the filing of the Notice of Proposed Construction or Alteration. **(Included in Project)**

Structural lighting is recommended to improve the visibility of the proposed project, particularly if the structure(s) approaches or exceeds the FAA/City of San Jose height limit for this site (this is not anticipated to be an impact). **(Included in Project)**

While the FAA has no direct authority to approve or deny a project identified as a hazard to navigation, the City of San Jose's input will be considered as part of the decision-making process prior to the certification of any development proposal on the project site. **(Included in Project)**

R. URBAN ECONOMICS

EXISTING SETTING

This analysis considers the potential secondary economic growth (i.e., restaurants, cocktail lounges and other commercial businesses which might serve the proposed arena facility and its patrons) which could result from the implementation and construction of the proposed arena facility.

1. Expected Market Area

According to an economic evaluation of the proposed arena facility prepared for the City of San Jose by Economic Research Associates (ERA) in February, 1987, the expected market area for the project site includes southern San Mateo County on the peninsula, the cities of Fremont and Newark in southern Alameda County and the counties of Santa Clara and Santa Cruz. Two other arena facilities in the San Francisco Bay Area currently competing with the proposed San Jose Arena (and particularly defining the market area) are the Oakland/Alameda County Coliseum (located in Oakland) and the Cow Palace, located up the peninsula in Daly City.

2. Site Characteristics

The project site is primarily surrounded by older, heavy industrial uses. No existing commercial businesses such as bars or restaurants which might serve

potential arena patrons were identified. The project site is bounded on the south by Julian Street, which does not offer as direct an access to downtown San Jose as does Alternative Site A.

POTENTIALLY SIGNIFICANT IMPACTS

The San Jose Metropolitan Area is primarily oriented to automobile transportation rather than other modes of transit. The use of nearby parking lots, garages and on-site parking is planned for in recognition of this orientation. The arena operator and show promoters will want adequate parking in order to accommodate patrons, and the City of San Jose is likely to require on-site parking to minimize impacts to surrounding properties.

1. Typical Attendance Patterns

Although the project site allows for less on-site parking due to the nearby garages and light rail system, the physical area of the surface lots will still be substantial. Because the arena facility is planned as an indoor facility, many events are expected to occur during the evening hours. Particularly during the winter months, patrons will arrive and leave the arena area after nightfall. The typical expected attendance pattern is for patrons to drive to the site, park as close to the arena facility as possible, and return to their cars and drive home without other trips or activities. This is especially true for nighttime events where patrons must cross a large, exposed parking lot or walk through a commercial area which tends to be largely deserted at night. The lack of other on-going activities raises safety concerns, and people will tend to limit their travel to known routes.

For daytime events, it is worth mentioning that California sports fans have a time-honored tradition of "tailgating" or parking lot parties. Arriving at the facility early and picnicking before game time has many advantages: patrons may avoid the stress of pre-game traffic, choose a parking space close to the arena or stadium and, to a certain extent, be exposed to the crowd exitement without being overwhelmed by it.

It is also noted that the performance or game is the event of choice and the focal point of the patron's trip. It is usually most convenient (and for many, less expensive) to satisfy the need for a light meal or drink from concession stands at the arena. It is an increasing trend for promoters to provide concessions. Families with small children may also prefer this option, as it avoids the logistical problems and possible time delays associated with eating in restaurants. Parents will also worry about being separated from their children in crowds. This possibility is reduced somewhat by limiting travel plans.

For many persons, attending a live event is enhanced by the presence of a crowd, but most people will want the crowd to be well mannered and orderly. There remains a certain level of unease due to unpredictable circumstances. For these reasons, families and other persons attending an event together will tend to follow a fairly strict pattern of going from their car into the arena, and then leaving straight for their cars and heading home at the end of the event.

2. Impact of Other Arena Facilities

In considering whether the proposed arena facility will act as a local stimulus to commercial development or increased patronage at local hotels, restaurants and bars, three potential groups of patrons can be identied. They are:

- Arena event patrons;

- Players or performers participating in arena events; and

- Persons returning to the arena area due to their exposure to interesting stores or shops while travelling to or from the arena.

In estimating the impact of the arena as a catylst for new commercial development in the vicinity of the project site, neighborhoods surrounding the Oakland/Alameda County Coliseum and the Cow Palace were examined. Additionally, the Economic Research Associates report (February, 1987), which provides extensive information regarding the impact of other similar sports arenas in the western United States, was reviewed. Overall, it is the opinion of Mills-Carneghi-Bautovich, Inc. (1987), that the presence of the proposed arena will not have a significant effect on surrounding land uses by generating demand for new commercial businesses such as restaurants, bars or shops.

Arena Players and Performers

One of the major financial impacts of the arenas studied by ERA was the increase in business for local hotels and motels due to the out-of-town sports players and performers appearing at the arena. It has been projected that the proposed San Jose arena facility could generate a lodging demand of 14,000 room-nights annually. Assuming an average room rate of $60.00 per night creates a total revenue of $840,000. The City of San Jose currently collects a room tax of eight-percent. This is equivalent to $67,200 in additional revenues on an annual basis once the proposed arena operation is stabilized (Economic Research Associates, 1987).

Arena Patrons

As noted above, the attendance of patrons to sporting and entertainment events at an arena such as that proposed in San Jose tends to be of an intermittent nature, and not constant or large enough to support new businesses. Additionally, the attendance patterns and methods of transportation further discourage this.

The Oakland/Alameda County Coliseum has been in operation since 1966, and it has an estimated 200 event days annually. It is located with convenient access to a Bay Area Rapid Transit (BART) station and Interstate 880 (the Nimitz Freeway). It has been observed that while events occurring at the Coliseum do create an increment of business for restaurants, bars and hotels in the Hegenberger Road area, the major stimulus for commercial development has been the growth of Oakland International Airport (Mills-Carneghi-Bautovich, 1987).

The Cow Palace in Daly City was established in the mid-1930's, and has an estimated 145 annual event days. No significant commercial development exists in the surrounding neighborhood, which is primarily industrial to the south and

residential in the other areas. One new fast-food restaurant was observed in a field survey. The case of the Cow Palace is a better test of the catalyzing force, or stimulus, of the arena patrons' presence in the area. There are no overlapping influences here, such as the Oakland International Airport, which affects the Coliseum location.

The ERA report notes that interviews with persons knowledgeable with experiences in Dallas, Indianapolis, Houston and Seattle concluded that patrons of the arenas in these cities contributed only a nominal portion of the demand which would be necessary to support commercial businesses. While sales of existing businesses might increase slightly, the effect of the arena patrons has not been significant enough to spur additional development (Economic Research Associates, 1987).

Persons Returning to the Arena Area

A final source of economic stimulation to area businesses could be persons who become interested in the downtown due to their trip to the arena. The evidence from other cities regarding this potential is somewhat conflicting. As it is currently situated, the project site has somewhat less exposure to the downtown area than does Alternative Site A.

2. Identity

A less-tangible effect of locating the proposed arena facility close by the downtown area is the benefit of identity. It is generally agreed that patrons attending arena events from outside San Jose or Santa Clara County may for the first time refresh and revise otherwise limited impressions of the area. A significant amount of new development has occurred in the downtown area and major improvements are also expected to be completed by the end of the decade. For many people, attending the arena may be their first opportunity to become familiar with a new freeway route, the light rail system and the view the downtown's expanding skyline. It is possible that this familiarity may generate additional shopping trips or visits to the downtown, outside of attending sports or entertainment events.

Another significant factor possibly influencing economic growth is increased revenue for bars and restaurants near the proposed arena facility. This will depend on whether or not San Jose becomes host to an NBA team. The presence of a home team can create a strong identity and civic pride, and also increase popularity at establishments where players, who become local celebrities in their own right, may gather. A successful year can put an area or town "on the map." This may be a temporary phenomenon for sports fans from outside the area, but is likely to inspire long-lasting loyalty on a more local basis.

3. Conclusion - Level of Impact

It is concluded that the construction and operation of the proposed San Jose arena facility would have a nonsignificant impact on existing commercial businesses. Furthermore, it is unlikely that the demand generated by the event patrons, visiting teams or performers will be sufficient to cause additional development. These conclusions are supported by market research and examination of other Bay Area arenas, as well as observations regarding attendance patterns for most sporting and entertainment events.

MITIGATION MEASURES

There are no significant urban economic impacts and threfore no mitigations are proposed.

SECTION II

ALTERNATIVES TO THE PROPOSED PROJECT

As stated in Section 15126 (d) of the California Environmental Quality Act, it is the responsibility of the Environmental Impact Report to describe a range of reasonable alternatives to the proposed project or to the location of the project, which could feasibly attain the basic objectives of the proposed project. Additionally, the environmental document should evaluate the comparative merits of the alternatives. Four alternatives to the proposed project were examined and ompared to the proposed project in order to compare relative impacts. These alternatives included:

- The "No Project" Alternative;
- Alternative locations for the proposed Arena Facility;
- A reduced seating capacity (14,000 seats) for the proposed project site; and
- An alternative that would impede the project objective but eliminate or reduce significant environmental effets.

The following is an evaluation of the likely environmental effects associated with each of the proposed alternatives.

A. NO PROJECT ALTERNATIVE

The no project alternatives assumes that the proposed San Jose Arena Facility would not be built on the project site and that the existing land uses would remain in their current state. The project site would retain its present appearance and character pending future development proposals. Implementation of this alternative would postpone the environmental impacts associated with the proposed arena facility as previously discussed in this document.

The no project alternative is the environmentally preferable alternative since it would avoid the adverse impacts of the project. The adverse impact of the project that would be avoided include the following:

- Relocation of loss of the two residences and 9 businesses that are located within the boundaries of the project site;
- Impacts to the neighborhoods in the vicinity of the arena that would change the neighborhood character;
- Removal of identified locally historic structures on their original sites;
- Generation of traffic that results in significant traffic conjestion at some locations during some arena events.

Adverse effects associated with the implementation of the no project alternative would include the following:

- The economic and cultural benefits associated with the operation of an arena facility would not be realized by the City of San Jose.

B. ALTERNATIVE LOCATION FOR THE PROPOSED PROJECT

The alternative of another location assumes that the proposed San Jose Arena Facility project would be developed as proposed. However, another location within the the City of San Jose would be considered for its development.

In addition to the proposed project site, this environmental document assessed the impacts associated with the development of an arena facility at two other locations. The first of these locations is in the immediate project vicinity on the northerly side of Santa Clara Street between the Southern Pacific railroad tracks and the Guadalupe River/Los Gatos Creek. Impacts associated with this alternative project site would be similar to those of the proposed site. However traffic generated by the proposed project would impacts approximately three more intersections than the traffic associated with the development on the proposed project site. Additionally, the visual impacts associated with the implementation of the proposed project would be less significant than for this alternative location.

Some of the impacts identified in the text of this document for the proposed arena facility on Site B (i.e., historic and cultural resources, and air quality) would be similar to those described for the arena facility on Site A. Additionally, this alternative location (Site A) would not have drainage and flood control constraints that are associated with the proposed project on Site B. Development of the arena facility on Site A along the northerly side of West Santa Clara Street would not require construction and/or widening of any bridges across the riparian habitat of Guadalupe River. As a result development of the arena on alternative Site A would avoid the significant vegetation and wildlife impacts that would result from developing the proposed project on Site B.

A second alternative location that was analyzed in this environmental document is an arena site on the southeasterly corner of State Route 237 and Zanker Road in the City of San Jose. This site has been refered to as "Site C" in this Environmental Impact Report. Due to its suburban location, impacts associated with this alternative site would not be as great as those described for the proposed project site. Traffic impacts associated with the development of an arena facility on this alternative location (Site C) would only impact five four intersections in the project vicinity, compared with the 14 intersections impacted by the proposed project on Site B. Although some archaelogical artifacts were found in the area of this alternative site (Site C), none were located in areas proposed for development.

The alternative of developing an arena on Site C would have less impacts that at Site A or Site B. Impacts could be further reduced by developing a smaller capacity arena, approximaterly 14,000 seats on Site C. The alternative of developing a 14,000 seat capacity arena would have the least impacts of all the alternatives, except the no project alternative, and would therefore be the environmentally perfered alternative.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

C. REDUCED CAPACITY ALTERNATIVE

The reduced capacity alternative considers the development of an arena facility with a maximum attendance level of 14,000 persons. This capacity would represent a 20 percent reduction in attendance than analyzed for the 17,500 person attendance level and a 30 percent reduction in attendance for the 20,000 person attendance level. Beneficial effects associated with this reduced capacity alternative would be most

noticeable from a traffic and circulation viewpoint. With the reduced capacity alternative, traffic impacts would be reflect a 20 to 30 percent improvement over the proposed project, depending on the attendance level. However, other impacts identified (i.e., land use, archaeologic and historic resources, wildlife and vegetation, residential and business relocation) would still be affected, since the reduced capacity alternative assumes development on the proposed project site.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

D. ALTERNATIVE THAT SUBSTANTIALLY IMPEDES THE PROJECT OBJECTIVES BUT ELIMINATES OR REDUCES SIGNIFICANT ENVIRONMENTAL EFFECTS

Implementation of the Julian-Stockton Master Plan is expected to eliminate or reduce all of the identified impacts to an nonsignificant level. The overall objective of the Julian-Stockton Master Plan is to implement the City of San Jose General Plan and policies of the City in the development of the area. The objectives of the actions proposed by the Julian-Stockton Master Plan include (Redevelopment Agency of the City of San Jose, 1987):

- Strengthen and expand the community's tax base through an effective program for economic development and improved employment opportunities;
- Provide for the installation of capital improvements (public and private) necessary to support such a program;
- Remove structurally substandard buildings, eliminate blighting influences, remove impediments to land development and achieve changes in land uses; and,
- Encourage the development of labor-intensive industries for the purpose of providing expanded employment opportunities.

Since the majority of the jobs generated in the Julian-Stockton area would conform to normal business hours (i.e., 8:00 AM to 5:00 PM), areas surrounding the project site would not be subjected to increased noise and disturbances in the evening and nighttime hours. However, an influx of jobs in this area would still create unacceptable traffic conditions. As a result, some of the traffic improvements proposed as part of the arena facility project would still need to be constructed upon implementation of the Julian-Stockton Master Plan. Additionally, some of the other impacts identified in this environmental document would need to be addressed should another development proposal be considered for the project site.

SECTION III

SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

Implementation of the proposed project would potentially result in eight significant unavoidable impacts. These impacts are listed below along with the section of this Environmental Impact Report where they are described.

1. Neighborhood Impacts - PART THREE, SECTION I., A. LAND USE

2. Traffic Circulation Impacts - PART THREE, SECTION I., B. TRAFFIC CIRCULATION

3. Pedestrian Crosswalk Impacts - PART THREE, SECTION I., D. PEDESTRIAN AND NEIGHBORHOOD ANALYSIS

4. Air Quality Impacts - PART THREE, SECTION I., E. CLIMATE AND AIR QUALITY

5. Noise Impacts - PART THREE, SECTION I., F. COMMUNITY NOISE

6. Vegetation and Wildlife Habitat - PART THREE, SECTION I., I. VEGETATION AND WILDLIFE

7. Archaeological Impacts - PART THREE, SECTIOIN I., L. ARCHAEOLOGICAL RESOURCES

8. Historical Impacts - PART THREE, SECTION I., M. HISTORICAL RESOURCES

9. Dislocation/Relocation of Businesses - PART THREE, SECTION I., N. RESIDENTIAL AND BUSINESS RELOCATION

All of the other impacts can be mitigated to a nonsignificant level or are not significant impacts.

SECTION IV

GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

A project is generally considered to be growth-inducing if it can foster economic or population growth, or the construction of additional housing (either directly or indirectly) in the surrounding environment. Included in this are projects which would remove obstacles to population growth. Growth is often induced through one or more of the following actions: 1) extending urban services into a previously unserved area; 2) extending a major roadway into a previously unserved area; or 3) establishing major new employment opportunities.

1. <u>Urban Services</u>

   The proposed arena facility project does not extend urban services (i.e., new water and/or sanitary sewer lines) to a new area. Existing service lines will be improved and upgraded, as necessary.

2. <u>Roadways</u>

   The proposed project does not include the construction of any new roadways. However, Riverfront Road, which will replace the existing Montgomery and Autumn Streets, will be constructed adjacent to the project site as part of the Guadalupe River Park Master Plan. The proposed project does involve the upgrading of existing intersections (i.e., acquisition of right-of-way, restriping of lanes). These improvements will be implemented to improve the circulation in the project area.

3. <u>Employment</u>

   Implementation of the proposed project would incrementally increase the employment opportunities in the project area. However, the project would not generate enough jobs to be considered growth-inducing.

4. <u>Housing</u>

   The proposed project will not generate any new housing opportunities.

SECTION V

CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

As stated in Section 15355 (b) of the California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report is required to describe the cumulative impacts from the proposed project. Cumulative impacts are the combined impacts of a proposed project added together with other closely related past present and reasonably foreseeable future projects. Future projects are projects that have been proposed and filed with the City of San Jose prior to the circulation of this Environmental Impact Report or development that is anticipated by Year-2000 in San Jose's General Plan. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This Environmental Impact Report addresses cumulative impacts from two perspectives. The first perspective is for Year-1991 when the proposed arena facility would become operational. In Year-1991 perspective, all existing and proposed development are considered in the background conditions and then the project impacts are added to these background conditions. The second perspective is for Year-2000, which is the horizon year of the San Jose General Plan. In Year-2000 perspective, all of the existing and planned development in the City's General Plan is considered with the background conditions and the arena facility project impacts are added to these background conditions.

The proposed 20,000 seat arena, together with other development that is existing or planned, could potentially result in significant impacts to traffic circulation, parking, air quality, noise, and urban services. Each of these potential cumulative impacts have been analyzed within their respective sections on this Environmental Impact Report and the cunclusions are summarized below.

A. TRAFFIC CIRCULATION

Cumulative traffic circulation impacts are presented in PART THREE, SECTION I., B. TRAFFIC CIRCULATION. This traffic analysis evaluated the traffic circulation impacts in Year-1991, taking into account traffic from exisitng development, approved but not constructed and occupied development and proposed development. Traffic from these developments was increased by adding an annual background growth factor to account for overall increases in traffic from development outside of the general project area but within the greater San Jose area. The project traffic was then added to derive cumulative traffic. The results of the cumulative traffic analysis showed that there would be significant cumulative traffic impacts at 14 intersections during the PM peak hour when 20,000 patrons attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would significant cumulative impacts at 13 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would impact only five intersections. The project includes improvements at these five intersections to mitigate the impacts.

The traffic analysis also evaluated the traffic circulation impacts in Year-2000, taking into account all of the development that is planned for in San Jose General Plan Horizon 2000. Year-2000 traffic is projected using the City of San Jose's traffic model, TRANPLAN, which includes all of the roadway improvements, transportation conditions that are planned for in Year-2000. Traffic from the arena facility was then added to this projected Year-2000 traffic. Traffic that would have been generated by other uses of the site was eliminated from the analysis. The results of the cumulative traffic analysis for Year-2000 showed that there would be significant cumulative

traffic impacts at 16 intersections during the PM peak hour when 20,000 patron attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would significant cumulative impacts at 11 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would impact only six intersections. The project includes improvements to mitigate impacts at five of the impacted intersections.

Even with the mitigation measures included in the project, the proposed 20,000 seat arena would result in significant cumulative traffic circulation impacts under some circumstances when taken together with traffic from other existing and planned development.

B. PARKING

Cumulative parking impacts are presented in PART THREE, SECTION I., C. PARKING ANALYSIS. This parking analysis evaluated the parking demand of the proposed arena together with parking demands of other existing and planned development. This parking analysis shows that there would be adequate off street parking in the project vicinity to meet the anticipated parking demands. Significant cumulative parking impacts would not result from the proposed arena facility together with other existing and planned development. Notwithstanding an adequate off street parking supply, there would be on street parking impacts in the neighborhoods surronding the arena site since it is free parking and would be a charge for nearly all of the other parking. This on street parking is a significant, but not a cumulative, impact.

C. AIR QUALITY

Cumulative air quality impacts are presented in PART THREE, SECTION I., E. CLIMATE AND AIR QUALITY. This air quality analysis was based upon the cumulative traffic analysis for Year-1991 and Year-2000, which takes into account the air pollution emissions from arena generated traffic as well as traffic from existing and planned development. The air quality analysis shows that there would be significant cumulative air quality impacts under worst case stagnate air conditions. These significant cumulative air quality impacts result from the total emissions including regional background air pollution cencentrations added to air pollution emissions generated by arena traffic and emissions from traffic associated with existing and proposed development.

D. COMMUNITY NOISE

Cumulative noise impacts were are presented in PART THREE, SECTION I., F. COMMUNITY NOISE. This noise analysis was based upon the cumulative traffic analysis for Year-1991 and Year-2000, as well as measured background noise levels which include air craft and railroad noises. The projected cumulative future noise levels would not exceed the noise standards established by San Jose's General Plan. These General Plan noise standards are expressed as averaged sound levels over a period of time and do not reflect single event sounds that can be disturbing such as pedestrian and autos leaving a neighborhood in the late evening. Late evening departures by arena patrons are expected to result in some noise impacts in the area surrounding the arena. These late evening noise impacts could be significant, but would not constitute a cumulative impact since there are no other projects or development being proposed that contribute to these late evening noises. Noise generated during construction of the arena facility would be a one time occurence limited to the construction phase of the project.

E. VEGETATION AND WILDLIFE HABITAT

The proposed arena would require construction and widening of bridges over the Guadalupe River resulting in the disturbance of the riparian community along this stream during construction and the permanent loss of about one-half of an acre of habitat. This loss of riparian habitat, together with the disturbance and reduction of riparian habitat along the Guadalupe River from the proposed Army Corps of Engineers flood control improvements, and the proposed construction of the Guadalupe River Park would result in a significant cumulative adverse impact to the riparian habitat.

F. URBAN SERVICES

The proposed arena facility would result in increased demand for urban services beyond that which is presently required from the present use on the site. As described in PART THREE, SECTION II., J. URBAN SERVICES, the project would require increased services for: fire protection, police protection, water supply, sanitary sewers, wastewater treatment capacity, natural gas, electricity, telephones and solid waste. All of these services could be provided to the arena. There would be a cumulative impact upon these urban services from the arena together with all other existing and planned development. These cumulative demands upon urban services are collectively substantial but would not constitute a significant impact since they are planned for by the utility suppliers and the City of San Jose. Impacts to City services including police protection, fire protection, sanitary sewers and wastewater treatment, are mitigated by Level of Service requirements established by San Jose's General Plan as program mitigation measures. These Level of Service requirements are implemented by only approving development that does not exceed the level of service. Since new development approvals are required to meet the program mitigation and Level of Service requirements, and since adequate levels of service are currently being provided and can serve the project, there would will not be significant cumulative impacts to urban services.

SECTION VI

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENACNE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between the local short-term uses of man's environment and the maintenance and enhancement of long-term productivity is often one of trade-offs or a balancing of social, economic and environmental impacts over time. In some cases, a relatively short-term benefit may have adverse cumulative effects. The opposite situation in which long-term benefits occur at the expense of short-term impacts is also possible. Decisions that influence the balancing of such impacts for this project are the responsibility of the City of San Jose as part of its policy and decision-making function.

The cumulative impacts of the proposed arena facility together with other existing and planned development would be: 1) Traffic Circulation; 2) Parking; 3) Air Quality; 4) Community Noise; 5) Vegetation and Wildlife Habitat Loss; and 6) Urban Services. Only two of these cumulative impacts are significant these are traffic circulation and air quality. The cumulative impacts have been previously described in PART THREE, SECTION V.

There would be eight significant unavoidable impacts resulting from implementation of the proposed arena facility. The six unavoidable impacts are: 1) Neighborhood Impacts; 2) Traffic Circulation Impacts; 3) Pedestrian Crosswalk Impacts ; 4) Air Quality Impacts; 5) Noise Impacts; 5) Vegetation and Wildlife Habitat Loss; 6) Archaeological Impacts; 7) Historical Impacts; and 8) Dislocation/Relocation of Businesses.

In addition to the above cumulative impacts and significant unavoidable impacts, there would be short-term construction impacts that include construction traffic, localized construction vehicle and equipment noise, increased rates of air pollutant emissions on-site, and increased energy consumption. Also, there would be temporary visual impacts during construction, consumption of construction materials and increased construction employment.

Not withstanding these impacts, the arena facility is being proposed at this time because of the economic, cultural and community benefits that would be derived from it.

PART FOUR

SAN JOSE ARENA FACILITY EIR

SITE C ANALYSIS

AUGUST 1987

SECTION I

SITE C

EXISTING SETTING, POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION MEASURES

A. LAND USE

EXISTING SETTING

1. Existing Land Uses

The project site is located on the southeast corner of State Route 237 and Zanker Road in the City of San Jose and it encompasses approximately 60 acres. The land uses on the 60 acres are predominately fallow and vacant. This use accounts for 51 acres and the remaining nine acres are used as part of the Santa Clara County Transit District bus maintenance facility. These nine acres include a parking area, perimeter road, and three small buildings (see Figure C-1).

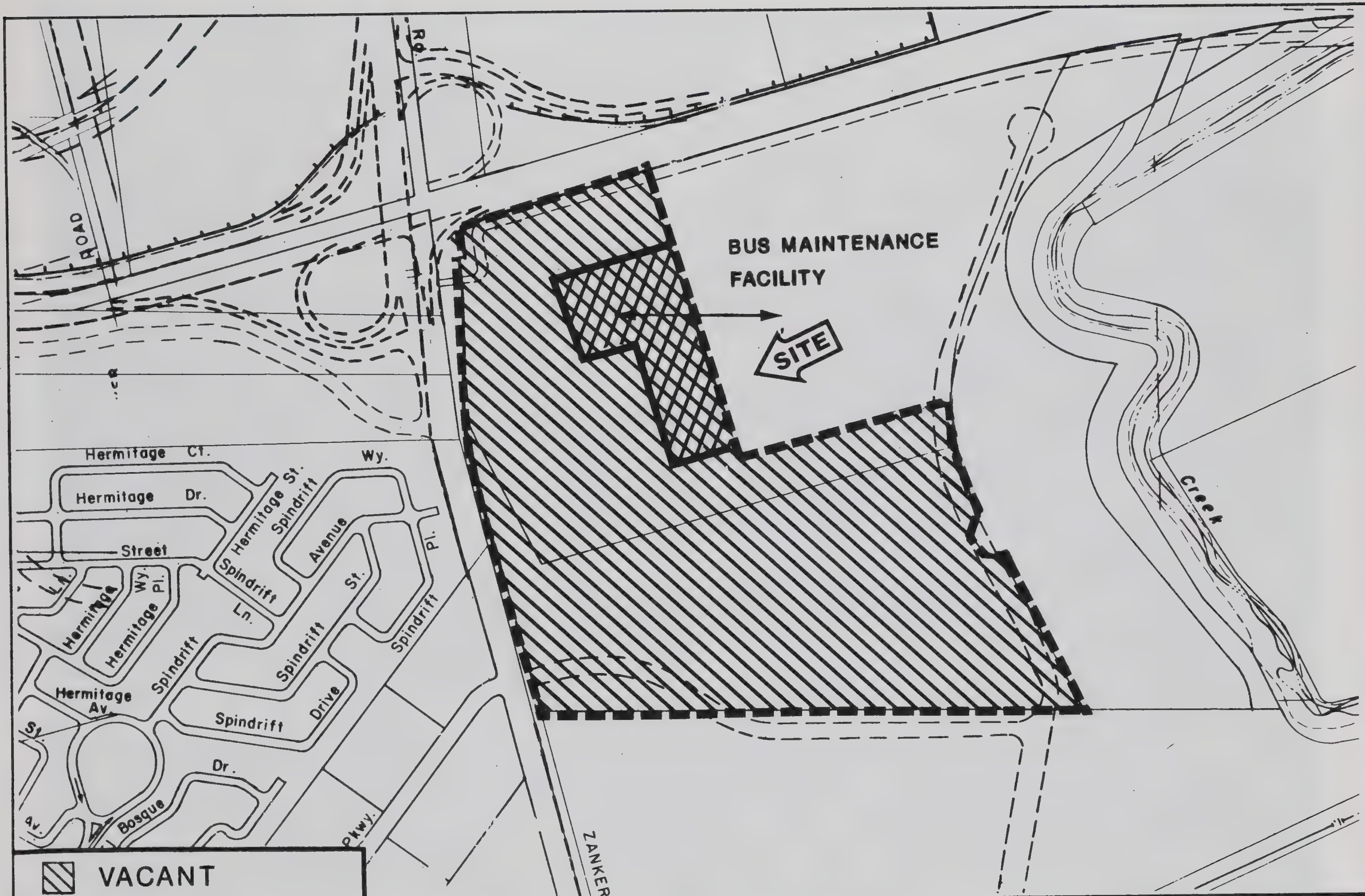
2. Surrounding Land Uses

Land uses surrounding the project site include agricultural, residential, industrial, open space/drainage, and public (see Figure C-2). The public use is the Santa Clara County Transportation Agency bus maintenance facility which occupies the property adjacent to the northeast of the site. The approximately 12 year old bus facility includes a repair shop building, coach washing facility, a large parking and yard storage area, and some office and other ancillary building space.

Located to the east of the bus maintenance facility and the site is the the open space and drainage uses of Coyote Creek. Between the edge of the site and the existing Coyote Creek channel there is a wide band of land reserved for the future planned Coyote Creek flood control improvements. This band of land is presently fallow.

Agricultural uses are located to the east of the site across Coyote Creek as well as to the north and the south of the site. The Agnews State Hospital buffer lands are in agricultural uses adjacent to the south of the site. To the north of the project site (across State Route 237) is a combination of productive agricultural lands, a single-family residential dwelling unit and several greenhouses.

The two private urban uses in the project area are residential and industrial and they are both located to the west of the site across Zanker Road. The residential uses is a large mobile home park that is between 15 and 20 years old. The industrial use consists of an industrial park development that is presently under construction and lies to the south of the mobile home park.



SOURCE: CITY OF SAN JOSE(1987)

EXISTING LAND USES

FIGURE C-1

AERIAL PHOTOGRAPH OF PROJECT SITE AND SURROUNDING LAND USES

0 500 Feet

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FIGURE C-2

3. General Plan and Zoning Map Designations

The City of San Jose Zoning Map designates the project site for I (Industrial) uses. The arena site is designated for Public/Quasi-Public uses on San Jose General Plan, Horizon 2000. The area to the south of the project site (occupied by Agnews State Hospital) is also designated for public-quasi public uses. The area north of the project site (across State Route 237) is designated for light industrial uses. The area east of the project site (east of Coyote Creek) is within the jurisdiction of the City of Milpitas. The City of Milpitas has designated this area for light industrial/business park uses. The area west of the project site (across Zanker Road), has two primary land use designations. First, there is a medium-high density residential (eight to 16 dwelling units per acre) for the existing mobile home park. Secondly, the lands surrounding this mobile home park have been designated for industrial park uses.

The City of San Jose's Horizon 2000 General Plan Land Use Map designates the project site for Public/Quasi Public uses. The proposed arena is consistent with General Plan land use designation of Public/Quasi Public use. The High-rise policy of the General Plan would be amended along with other amendments of the General Plans as described in PART ONE, SECTION I., E. PROJECT ACTIONS: USES OF THE EIR.

POTENTIALLY SIGNIFICANT IMPACTS

1. Land Use Effects

The primary effect of developing the area will be to convert 51 acres of fallow open space land to urban public use. Nine acres of the Santa Clara County Transit District bus maintenance facility would be converted to the arena facility. The arena structure will be the highest building in the immediate area with an apparent height of 50 feet above the bermed area surrounding it. The arena will have a footprint of approximately 3.7 acres and the nearly all of the remaining site will be used for surface parking. The net land use effect of developing the arena will be to increase the intensity of use on the project site.

There are two primary impacts that result from the land use change proposed by construction and operation of the arena. These two impacts are traffic congestion from arena-generated traffic and noise impacts from operation of the arena.

Another land use impact that could result from development of the arena is parking intrusions in parking lots of industrial development in the vicinity of the site such as the development along Baypointe Drive on the westerly side of Zanker Road. Parking by arena patrons in these industrial parking lots is expected to result in littering and possibly damaging landscaping from pedestrian traffic. There are no residential neighborhoods that are expected to impacted by parking or vehicular intrusion. The only residential use in the project area are the mobile home parks located to the west of the site. There is no access between these mobile home parks and Zanker Road or other streets in the project area. Access to these mobile home parks is from North First Street and remote from the arena site therefore parking intrusion in the mobile homes is not expected. There would be no significant land use impacts resulting from development of the proposed arena.

Other impacts resulting from development of the arena are potentially significant and they are each discussed subsequently within their respective section of this Environmental Impact Report.

2. Impacts of General Plan Amendments

The proposes amendments to San Jose's General Plan that would allow development of the proposed arena facility as descrined in PART ONE, SECTION I., E. PROJECT ACTIONS: USES OF THE EIR. The ultimate land use impacts that would result from the proposed General Plan amendments are those impacts discussed in this environmental document. These impacts include:

- Increased traffic in the project area;
- Construction of structures not in scale with surrounding land uses; and
- Potential impacts to archaeological resources; and
- Increased noise levels in surrounding neighborhoods.

The impacts resulting from the proposed General Plan amendments (to allow development of an arena) on the site are similar to those impacts that could result from implementation of the existing General plan. However, some of the impacts resulting from the proposed arena use would be greater than form implementation of the existing General Plan. Examples of greater impacts form the arena use are more traffic congestion impacts and greater noise impacts.

MITIGATION MEASURES

Mitigation measures for both traffic circulation impacts and noise impacts are presented subsequently in their respective sections.

B. TRAFFIC AND CIRCULATION

The proposed arena facility would impact the existing roadway and circulation system by adding additional trips to the project site and area. These impacts would be on regional, local and site circulation roadways. this section discusses the existing setting, method of analysis, environmental impacts (including cumulative) and mitigation.

EXISTING SETTING

The objective of this analysis is to determine how the transportation system will be affected by the proposed arena project. For a complete traffic analysis of the site under consideration, three different time scenarios were considered for each of the two seating capacities. The three scenarios are:

- Weekday PM Peak Hour Analysis with an arena event starting time of 6:00 PM.
- Weekday Evening Peak Hour Analysis with an arena event starting time of 7:30 PM.
- Weekday Late Evening Peak Hour Analysis with an arena event ending time of 10:30 PM.

The two different seating capacities considered were 17,500 seats and 20,000 seats. The different scenarios were evaluated for existing Year-1991 and Year-2000 traffic conditions.

After reviewing potential impacts at six intersections in the greater project vicinity, the City of San Jose selected four critical intersections around the proposed project site for traffic analysis. These four intersections are listed below (and are shown on Figure C-3):

- Zanker Road and State Route 237
- First Street and State Route 237
- Zanker Road and Montague Expressway
- First Street and Montague Expressway

Two additional intersections (Montague Expressway/Trimble Road and Montague Expressway/O'Toole Road) were evaluated by City staff prior to the selection of these critical intersections. The results of this preliminary analysis indicated the these two intersections would not experience significant impacts due to the addition of the arena traffic under the worst-case scenario (i.e., 6:00 PM starting time with 20,000 patrons attending). Accordingly, these intersections were not included in this analysis.

1. Data Collection - Method of Analysis

The traffic counts for the PM peak hour were obtained from the City of San Jose files. For intersection locations where counts were taken during the previous years, an annual growth factor of 3.6 percent was applied to reflect existing (1987) conditions.

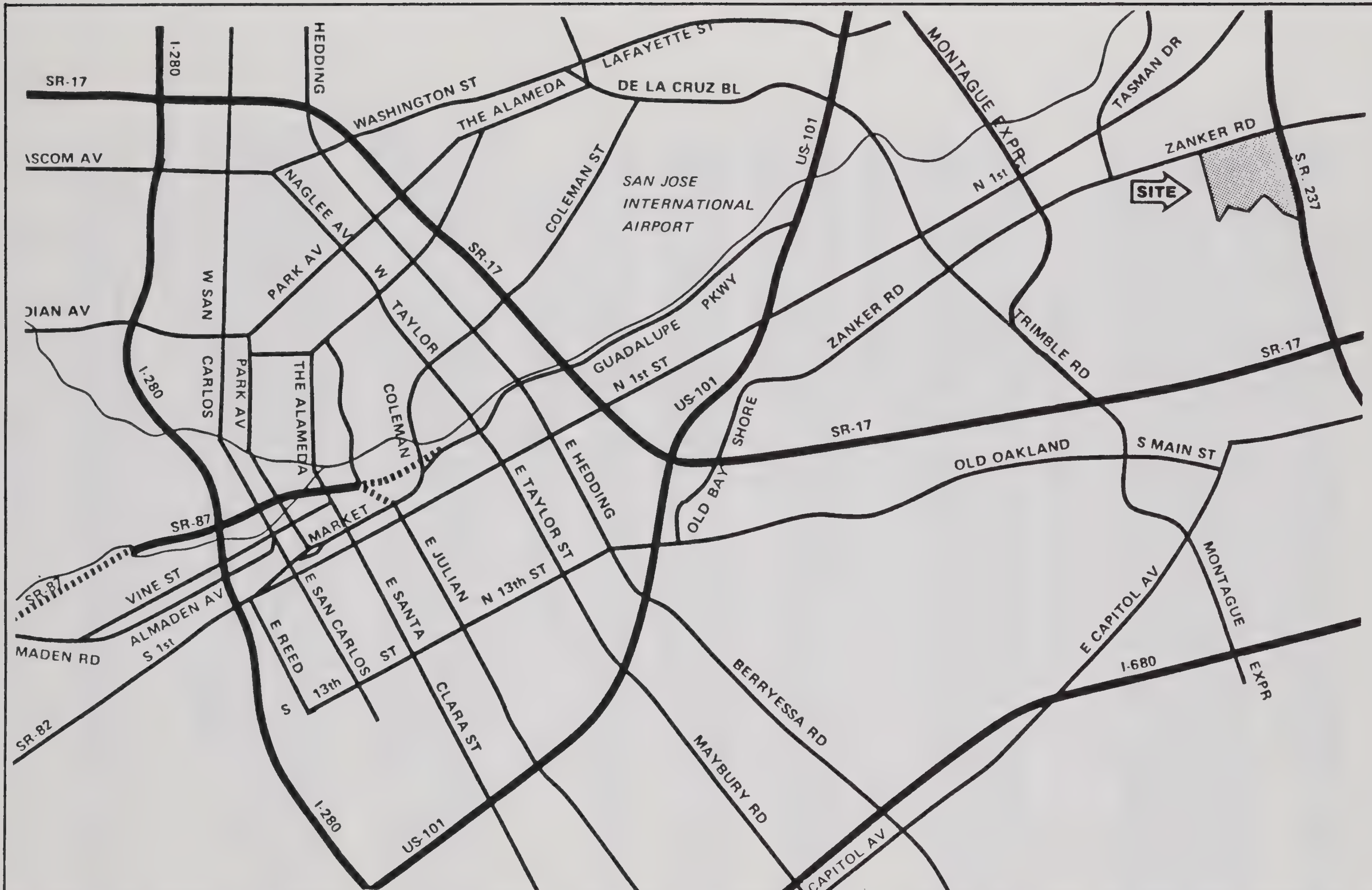
The peak hour counts for the remaining time periods were obtained from recent manual turning movement counts conducted by Barton-Aschman Associates, Incorporated. Traffic counts were taken during the evening period between 6:30 and 8:30 PM and the late evening period between 10:00 PM and 12:00 midnight. As the starting time for arena events is expected to be 7:30 PM, the peak hour for arena patron arrival would be between 6:30 and 7:30 PM. Likewise, an event with an ending time around 10:30 PM would result in a peak hour for arena patron departure of around 10:30 to 11:30 PM.

Data collected for similar arena facilities in other areas indicated that approximately 93 percent of the arena patrons arrive during the hour immediately preceeding the start of an event. For an event starting at 6:00 PM, 93 percent of the patrons would arrive during the PM peak hour (between 5:00 and 6:00 PM) and the remaining seven percent would arrive at other times. For an event starting at 7:30 PM, approximately four percent would arrive during the PM peak hour.

The departure pattern varies more so by the type of event. For example, studies show that for basketball events, an estimated 48 percent of the patrons leave before the end of the event, while for entertainment events, only seven percent were found to have departed the surveyed site prior to the conclusion of the event.

2. Intersection Operation

The traffic conditions at an intersection can be described in the terms of Level of Service (LOS). LOS is a qualitative description of an intersections's operation, based on the amount of traffic, conflicting turning movements, delays and congestion. LOS range from A, representing free-flow conditions, to F,



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LOCATION OF PROJECT SITE

FIGURE C-3

representing jammed conditions. Generally, the LOS is derived from the ratio of traffic volumes and available capacity shown as V/C ratios. The various LOS, their descriptions and range of V/C ratios are shown in Table C-1.

A signalized intersection's LOS can be calculated with a number of different methods. The City of San Jose has adopted its own method which is based on critical traffic movements. In this method, the volume of vehicles completing the turning movements that dictate the operation of the intersection are added together. The sum is divided by the capacity of the movements, and a volume to capacity ratio is obtained. The volume-to-capacity ratio is correlated to a LOS described in Table C-1.

Existing Intersection Level of Service

The results of the LOS calculation performed for the four intersections for the different time periods are presented in Table C-2. In general, the City of San Jose considers any intersection operating below LOS D as unacceptable. The results of the intersection LOS analyses indicated that for all of the time periods, all four intersections operated at LOS C or above.

3. Hourly Traffic Variation

Traffic volumes on the roadway network system vary over the 24 hour period. During the weekday AM and PM peak periods, there are more vehicles on the roadways than during the mid-day period. At night, traffic volumes on most roadways are relatively low.

Different types of roadway facilities have different hourly variations throughout the day. For example, major arterials carrying heavy commuter traffic have a different pattern from roadways serving retail areas.

In order to determine the travel pattern for the area in the vicinity of the project site, 24 hour counts were conducted at the following intersections.

- Montague Expressway west of Zanker Road
- Zanker Road south of State Route 237

The machine counts were taken in May, 1987. The weekday traffic volumes measured on a typical weekday are given in Table C-3. The hourly totals for these counts were plotted in graphical form to determine the hourly travel pattern, the traffic volumes during peak travel times and the off-peak travel characteristics. The hourly variations for both locations are shown in Figures C-4 and C-5.

It should be noted that these graphs clearly reflect the character of the roadway and the function that it performs. For example, Montague Expressway carries a significant amount of commuter traffic on weekdays during the AM and PM peak periods. These commute patterns are reflected in the high peaks on the graphs. However, Zanker Road carries lower volumes and less commuter traffic. The pattern in this case is flatter and does not show the high peaks.

4. Transit Service

Currently, no mass transit improvements are planned for the area in the vicinity of the project site. However, studies are underway to investigate a mass transit

TABLE C-1

INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Interpretation	V/C Ratio
A, B	Uncongested operations; all queues clear in a single signal cycle.	Less Than .7
C	Light congestion; occasional backups on critical approaches.	.700 - .799
D	Significant congestion on critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	.800 - .899
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es).	.900 - .999
F	Total breakdown, stop-and-go operation.	1.0 And Greater

TABLE C-2

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	F	1.008	C	.772	A	.398
First & State Route 237	F	1.020	B	.622	A	.250
Zanker & Montague	A	.585	A	.361	A	.104
First & Montague	F	1.012	A	.461	A	.152

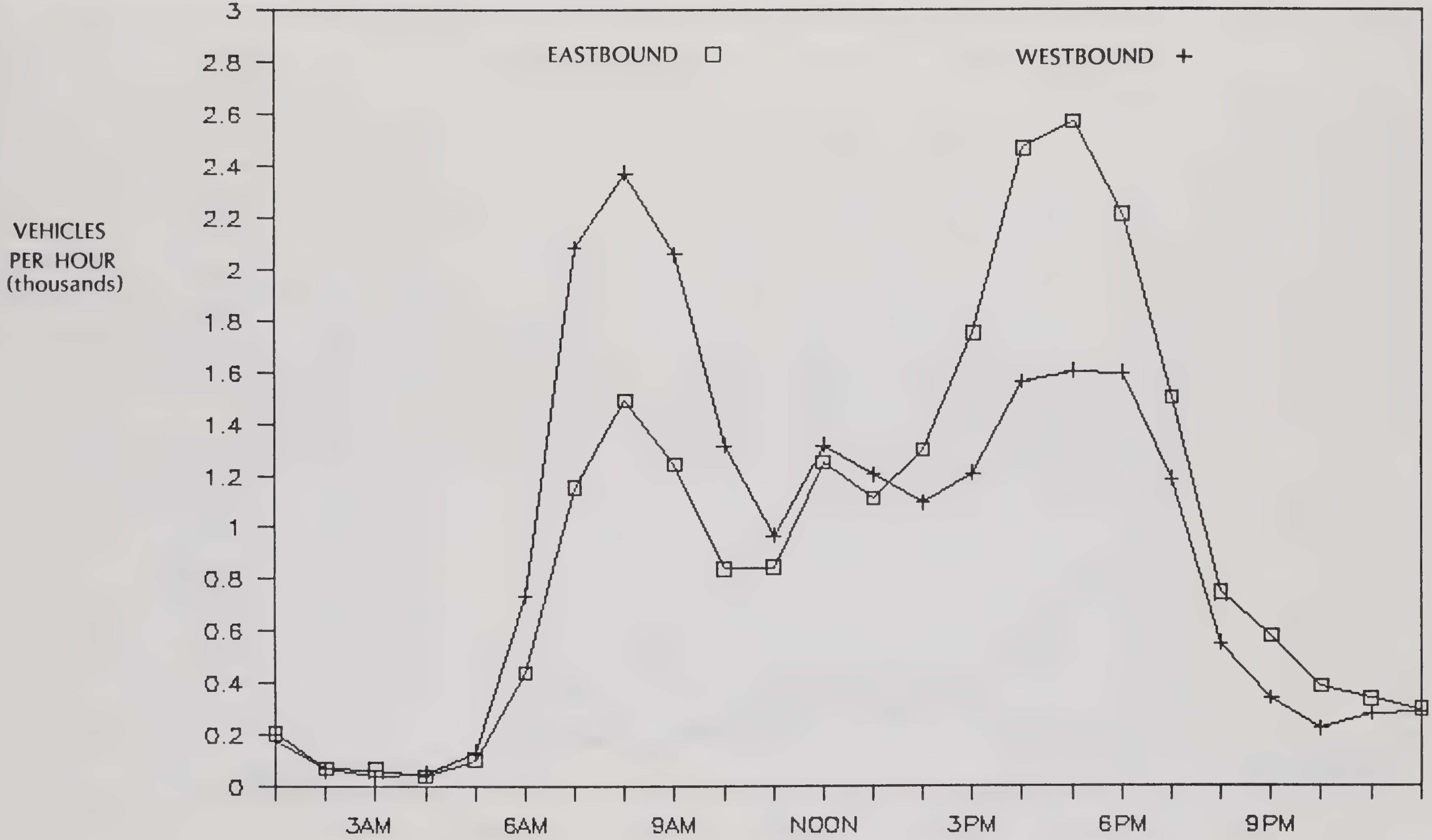
/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio

TABLE C-3

SUMMARY OF 24-HOUR MACHINE COUNTS

Count Location			24-Hour Weekday Traffic Volumes
1.	Montague Expressway west of Zanker	EB/a/	23,008
		WB/b/	22,423
2.	Zanker Road south of State Route 237	NB/c/	4,622
		SB/d/	3,859

/a/ EB = Eastbound
/b/ WB = Westbound
/c/ NB = Northbound
/d/ SB = Southbound

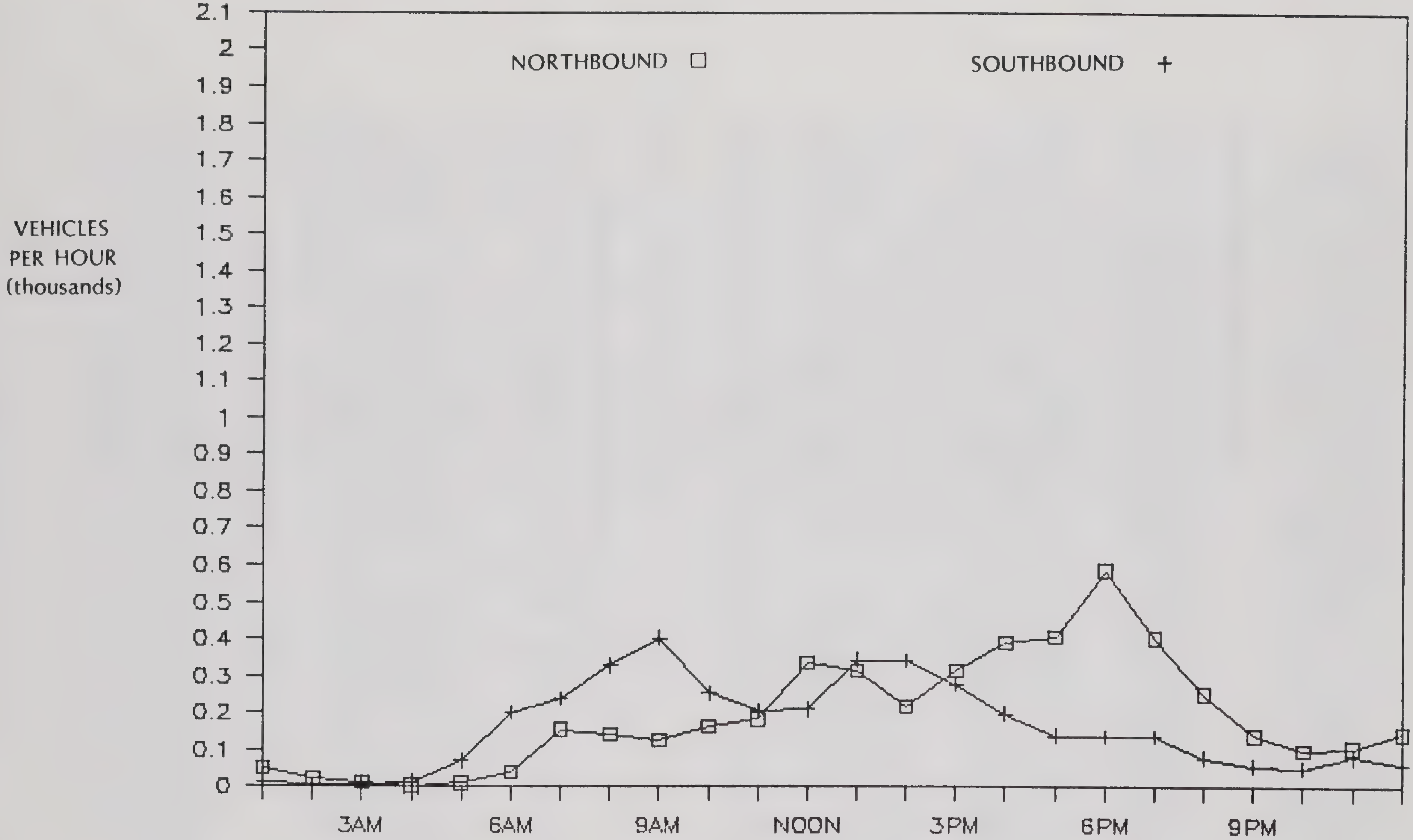


SOURCE: BARTON-ASCHMAN(1987)

MONTAGUE WEST OF ZANKER

DAILY TRAFFIC PATTERN THURSDAY 5/20/87

FIGURE C-4



SOURCE: BARTON-ASCHMAN(1987)

ZANKER SOUTH OF ROUTE 237

DAILY TRAFFIC PATTERN WEDNESDAY 5/13/87

FIGURE C-5

connection between Fremont and the South Bay Area. A number of Bay Area Rapid Transit (BART) and Light Rail options are being studied. It is possible that a light rail connection could be constructed from North First Street along Tasman Drive into Milpitas. If this occurs, the project site would benefit from such a service. For this study, no mass transit service was assumed.

5. Roadway System Improvements

Major transportation system improvements are planned for the area in the vicinity of the project site. The three facilities targeted for future improvements that would serve the project site include State Route 237, Zanker Road and Tasman Drive.

State Route 237 is currently an expressway with at-grade, signalized intersections at North First Street and Zanker Road. Under the Measure A Program, State Route 237 is planned to be upgraded to a full freeway facility. However, the status of this improvement is not certain. The completion date, at this time, is not known. For this study, this improvement was not assumed to have been completed for the Year-1991 analyses.

Zanker Road, in the vicinity of the project site, is planned to be a six lane arterial facility, with funding by both development activities and the City of San Jose Redevelopment monies. The schedule for these activities is currently on an as-needed basis to match the development of adjacent properties. However, the funding is not yet available. Therefore, the completion date is unknown.

Tasman Drive is planned for extension to to the Guadalupe River. This extension would have minimal traffic impacts on the project site.

POTENTIALLY SIGNIFICANT IMPACTS

1. Year-1991 Base Conditions-- Intersection Operation

It is anticipated that 1991 is the year for the opening of the proposed arena facility. Accordingly, the traffic analysis was complete for Year-1991 conditions.

For the three scenarios studied, existing traffic volumes at the four critical intersections were factored by an annual growth factor of 3.6 percent to the Year-1991. This growth rate reflects the annual increase in the regional background traffic anticipated between now and 1991. Also, the anticipated traffic volumes from future projects in the site vicinity, which have been approved, were added to the factored traffic volumes. This provided Year-1991 traffic volumes.

Year-1991 (Base Conditions) Level of Service

The results of the level of service calculations performed for Year-1991 base traffic conditions are summarized in Table C-4. These traffic volumes do not include any project traffic. The purpose of analyzing Year-1991 base conditions is to determine the operating levels of the studied intersections prior to the addition of the arena-generated traffic for Year-1991. The number of

TABLE C-4

1991 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	F	1.513	F	1.209	D	.873
First & State Route 237	F	1.637	F	1.072	A	.408
Zanker & Montague	D	.875	A	.513	A	.144
First & Montague	F	1.460	C	.755	A	.259

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio

intersections which would operate under unacceptable conditions for each of the time scenarios analyzed are provided below.

- Weekday PM peak hour: 3 intersections
- Weekday Evening peak hour: 2 intersections
- Weekday Late Evening peak hour: None

The results indicate that three intersections would operate under unacceptable conditions during the PM peak hour. They are:

- Zanker Road and State Route 237
- North First Street and State Route 237
- North First Street and Montague Expressway

The two intersections on State Route 237 would also be operating under unacceptable conditions during the evening peak hour.

These conclusions clearly indicate that with or without the proposed arena development, major intersection improvements would be necessary for the two State Route 237 intersections. Therefore, under Year-1991 base conditions, three intersections would be significantly impacted.

2. Year-1991 Base Plus Project Conditions

In this study, analyses were conducted for two different seating capacities: 17,500 seats and 20,000 seats. For both cases, maximum attendance was assumed.

Trip Generation

The arena trip generation for each of the two seating capacities are given in Table C-5. These numbers are based upon the following assumptions:

- Estimated Transit use: four percent by buses; no mass transit service assumed
- An average of 3.0 persons per vehicle
- The arena events will start at 6:00 PM and/or 7:30 PM
- For a 7:30 start time, approximately four percent of the patrons will arrive during the PM peak hour (5:00 to 6:00 PM) and 93 percent would arrive between 6:30 and 7:30 PM
- Foe a 6:00 PM start time, an estimated 93 percent of the patrons will arrive during the PM peak hour (5:00 to 6:00 PM)
- An estimated 93 percent of the patrons will leave the arena during the hour immediately after an event

The traffic analysis is based upon the assumption that 96 percent of the arena patrons would arrive at the facility by automobile.

TABLE C-5

TRIP GENERATION FOR ARENA

Site	Average Peak Attendance	Transit (Person Trips)	Automobile (Vehicle Trips)
C	17,500	350	5,720
C	20,000	400	6,535

Automobile Trip Distribution and Assignment

Year-1995 projected population statistics for the South Bay Area were used to determine the market area for the arena site. Economic Research Associates (1987) provided the projected population for each of the geographic segments of the market area. The population information was extracted from the projections produced by the Association of Bay Area Governments (ABAG). The automobile trip distribution was based upon the percentages shown in Figure C-6, which gives the percentage of the total arena trips estimated to use each of the regional facilities. The majority of the arena patrons is expected to use regional freeway facilities for obtaining access to the project area.

The estimated automobile trips were distributed and assigned to the regional and local roadways approaching the proposed arena site. The resulting PM peak, evening peak and late evening peak hour traffic assignments were used to determine the traffic impact of the proposed arena project.

DIRECTIONS OF APPROACH FOR PROJECT SITE

FIGURE C-6

3. Intersection Operation-- Year-1991 (With Project) Level of Service

The intersection level of service calculation results for both of the seating capacities (17,500 seats and 20,000 seats), with maximum attendance, are presented in Tables C-6 and C-7. The number of intersections that would operate under unacceptable conditions is the same for both attendance levels.

- Weekday PM peak hour: 3 intersections
- Weekday Evening peak hour: 2 intersections
- Weekday Late Evening peak hour: None

However, when these results are compared with Year-1991 base conditions (without the arena traffic), it is observed that three intersections would already operate under unacceptable conditions during the PM peak hour and two intersections during the evening peak hour.

According to the City of San Jose Level of Service policy, the traffic impact of a project at an intersection is considered significant and therefore will require mitigation if either one of two conditions occur:

- The level of service of an intersection deteriorates from an acceptable level (LOS A, B, C or D) to an unacceptable level (LOS E or F) after the addition of the project traffic

- For an intersection operating at an unacceptable level of service prior to the addition of the project traffic, the proposed project increase the critical base condition traffic volumes by one percent or more.

PM Peak Hour

By the City of San Jose's Level of Service policy, all four intersections would be significantly impacted during the PM peak hour for an arena event with a start time of 6:00 PM. However, with or without the arena development at the project site, three of these intersections would have serious operational problems with long queues and delays.

For a 7:30 PM start time, because only a small percentage of the arena patrons would be in the site vicinity during the PM peak hour, the proposed project would increase the critical base volumes for the intersection of North First Street and Montague Expressway by less than one percent. According to the City of San Jose Level of Service policy, no mitigations would be required for this intersection.

Evening Peak Hour

The State Route 237 intersections would have operational problems during the evening peak hour. The traffic associated with the arena events would cause the operations of these intersections to deteriorate even more, especially at the intersection of Zanker Road and State Route 237.

Therfore, thr proposed project would have a significant impact on the traffic and circulation for the project area.

TABLE C-6

1991 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	F	2.000+	F	2.000+	D	.873
First & State Route 237	F	1.715	F	1.097	C	.702
Zanker & Montague	F	1.149	B	.619	A	.549
First & Montague	F	1.533	D	.861	A	.367

/a/ LOS = Level of Service

/b/ V/C = Volume to Capacity Ratio

TABLE C-7

1991 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	F	2.000+	F	2.000+	E	.936
First & State Route 237	F	1.722	F	1.129	C	.742
Zanker & Montague	F	1.192	B	.657	B	.607
First & Montague	F	1.543	D	.877	A	.386

/a/ LOS = Level of Service

/b/ V/C = Volume to Capacity Ratio

Late Evening Peak Hour

Due to the relatively low base traffic volumes during this time period, the operations of the four intersections included in this traffic analysis would be above the minimum acceptable standards, even with 93 percent of the arena traffic leaving the site within the hour after the end of an event.

4. Year-2000 Base Conditions

The traffic impact analysis for Year-2000 was conducted to determine the long-term impact of the arena project. An analysis of this type requires a reliable, long-range forecast of background traffic.

The City of San Jose has developed and validated a travel-demand model for the Year-2000. This model was used for forecasting the PM peak hour traffic volumes for the city roadways. This model is known as the HORIZON 2000 TRANPLAN model. This model is based on the TRANPLAN computer software package, which is commonly used for traffic simulation studies for large urban areas such as the City of San Jose. The City's model is a sophisticated, analytical tool with more than 600 traffic analysis zones and thousands of network links. The model generates, distributes and assigns nearly 500,000 all-purpose trips to the roadway system network for the PM peak hour. During the assignment process, this model accounts for traffic congestion by assigning trips so as to minimize travel time on the roadway network, but also takes into consideration the available roadway system capacity. Major planning assumptions built into the model for the Year-2000 include:

- Validation of model using Year-1980 census data
- Year-2000 data generally matched the ABAG projections
- Full build-out of North San Jose by Year-2000
- Completion of the following transportation system projects
  - Construction of State Route 87 as a freeway from South San Jose to north of Taylor Street
  - Expansion of Interstate 280 to eight lanes from Interstate 880 to Magdalena Avenue
  - Widening of Interstate 880 to six lanes north of U.S. Highway 101
  - Modification of State Route 237 to provide eight lanes (six lanes plus two auxiliary lanes)
- Increased diversion to transit and carpools, with an expanded County-wide HOV lane program, which includes Interstate 280, U.S. Highway 101, State Route 237, San Tomas Expressway, Capital Expressway, Montague Expressway, Lawrence Expressway and Central Expressway

The City's traffic model was utilized for estimating Year-2000 base traffic volumes in the vicinity of the project site.

Different factors were applied to the PM peak hour traffic volumes produced by the City's traffic model for projections of traffic volumes during the other time periods under study. These peak hour factors were developed from the 24 hour machine counts taken along the various roadway facilities in the project area.

5. Intersection Operations-- Year-2000 (Base Condition) Level of Service

The projected operation of the intersections in the vicinity of the project site is described in Table C-8.

TABLE C-8

YEAR 2000 BASE CONDITION INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	N.A./c/		N.A.		N.A.	
First & State Route 237	N.A.		N.A.		N.A.	
Zanker & Montague	E	.919	B	.667	A	.249
First & Montague	E	.938	B	.652	A	.229

/a/ LOS = Level of Service

/b/ V/C = Volume to Capacity Ratio

/c/ N.A. = Not Applicable

The number of intersections that would operate under unacceptable conditions for each of the time scenarios analyzed are as follows:

- Weekday PM peak hour: 2 intersections
- Weekday Evening peak hour: None
- Weekday Late Evening: None

By Year-2000, even without the proposed arena project, the two intersections on Montague Expressway (at North First Street and Zanker Road) are projected to operate at unacceptable levels of service during the PM peak hour.

6. Intersection Operations-- Year-2000 Base Plus Project Conditions

The traffic impacts of the arena project on Year-2000 base conditions were determined for the two attendance levels studied.

Year-2000 (With Project) Level of Service

The intersection level of service calculation results for both seating capacities (17,500 seats and 20,000 seats) with maximum attendance are presented in Tables C-9 and C-10.

The number of intersections which would operate under unacceptable conditions are presented as follows:

TABLE C-9

2000 WITH PROJECT (CAPACITY: 17,500 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	N.A./c/		N.A.		N.A.	
First & State Route 237	N.A.		N.A.		N.A.	
Zanker & Montague	F	1.153	D	.847	B	.638
First & Montague	F	1.053	C	.776	A	.315

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable

TABLE C-10

2000 WITH PROJECT (CAPACITY: 20,000 PERSONS)

INTERSECTION LEVELS OF SERVICE

Intersection	Wkdy PM		Wkdy Eve.		Wkdy Late Eve.	
	LOS/a/	V/C/b/	LOS	V/C	LOS	V/C
Zanker & State Route 237	N.A./c/		N.A.		N.A.	
First & State Route 237	N.A.		N.A.		N.A.	
Zanker & Montague	F	1.202	D	.893	B	.694
First & Montague	F	1.071	C	.794	A	.336

/a/ LOS = Level of Service
/b/ V/C = Volume to Capacity Ratio
/c/ N.A. = Not Applicable

- Weekday PM peak hour: 2 intersections
- Weekday Evening peak hour: None
- Weekday Late Evening peak hour: None

When these results are compared with the results from Year-2000 base conditions (without the arena project), it is observed that the two Montague Expressway intersections would already operate under unacceptable conditions during the PM peak hour prior to the addition of the arena traffic through these intersections. Furthermore, the increases in the critical base volumes are less than one percent. By the City of San Jose's Level of Service policy, no mitigation would be required at these intersections.

Therefore, the proposed project would not have a significant impact on the PM peak hour traffic.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse traffic and circulation impacts identified in this analysis.

The required transportation-related improvements for both Year-1991 and Year-2000 are outlined below. The intersections which could not be mitigated due to physical constraints are indicated as well.

1. Year-1991

PM Peak Hour

Intersections of Zanker Road/State Route 237 and North First Street/State Route 237

As previously indicated, State Route 237 is currently an expressway with at-grade, signalized intersection at these two intersections (and several other). Under the Measure A program, State Route 237 is planned to be upgraded to a full freeway facility with interchanges planned at both of these existing intersections. Since the time frame for these improvements are not certain, no interchanges were assumed in this study. Even though the impact is less than significant under City LOS Policy, the LOS calculations have indicated that without the interchanges, both intersections would have severe operational problems during PM and Evening peak hours by Year-1991 with or without the arena project.

It is recommended that this improvement be a priority item under the Measure A program, whether or not the arena is built on this project site. An arena event at this location would definitely require improved operations through these two intersections. Implementation of this mitigation would reduce the impact to nonsignificant. **(Not Presently Included in Project)**

Evening Peak Hour

Intersections of State Route 237 with Zanker Road and North First Street

The improvements suggested above would also improve the operation of these two intersections during the evening peak hour, when the inbound arena traffic is at its highest. **(Not Presently Included in Project)**

C. PARKING ANALYSIS

EXISTING SETTING

1. Existing Parking Inventory and Usage

Currently, there is a bus maintenance facility at the northerly end of the proposed project site. There are approximately 250 parking spaces provided for the employees of the bus maintenance facility.

Employees at the bus maintenance facility work in three shifts. The parking demand is distributed over the 24 hour day. The day shift parking demand for the employees was observed to be 200 spaces. The evening shift has 65 spaces occupied and the night shift demand has 35 spaces occupied.

POTENTIALLY SIGNIFICANT IMPACTS

1. Arena Parking Demand

The parking demand for an arena at this site will depend on the mode of arrival, vehicle occupancy of the arena patrons, the starting and ending time of the arena events and the size of the anticipated arena facility. Following is a brief discussion of each of the elements as they apply to the project site.

Travel Mode

Use of the private automobile as an arrival mode to the proposed arena is largely dependent on the cost of parking, the available parking supply and the existence of other convenient transportation alternatives for the arena patrons.

Due to the suburban location of the project site, currently only one bus route (Route 82) operates in the vicinity of the proposed site. Unless special bus service is instituted for the arena patrons, it is not likely that the current services will expand, due to the relatively low demand for transit service to this area. It is anticipated that charter bus service would be used by the arena patrons. Also, the use of express buses to the arena events could be considered, provided that the demand warrants such a service. It is estimated that about 4-percent of the arena patrons would be using various forms of bus service.

Vehicle Occupancy

Vehicle occupancy for arena events varies by the type of event. For example, family show, which attract many youngsters and senior citizens, normally have much higher person-per-car ratios than sporting or other events. In the past decade, the professional basketball games at the Oakland/Alameda County Coliseum averaged from 2.90 to 3.15 persons per vehicle. During the same period at the Coliseum, family performances averaged 4.5 to 5.0 and concerts averaged 3.5 to 4.0 persons per vehicle.

The firm of Coliseum Consultants was retained as a member of the team for the study of the alternative arena sites in San Jose. Based on their experience, the consultants recommended that 3.0 persons per vehicle as the average vehicle occupancy rate for this study. On the basis of this recommendation, a vehicle occupancy factor of 3.0 persons per vehicle was adopted.

Peak Attendance Period

The attraction of people to events held at the proposed arena will depend largely on the patrons' available leisure time. As a result, the majority of events will be held during evenings and on weekends to avoid conflicts with normal working hours.

Experience with other indoor arenas around the country has shown that most regularly-scheduled professional sporting events are held on weekends and during the weekday evenings. Certain other special events may have weekday show times, although peak attendance usually occurs during the evenings and on weekends. For this analysis, the parking demand was estimated for two time periods. The parking demand for the evening events was estimated based on the full capacity attendance for major events. The parking demand for afternoon events, consisting of family performances such as circuses and ice show, was estimated for an average attendance level based on the experiences of other similar arena facilities around the country.

Arena Size

The proposed arena would be designed to host more than one type of attraction. Similar arenas are used for sporting events such as NBA basketball, ice hockey, professional boxing/wrestling and tennis tournaments. In addition to the sporting events, the arena would also host events not related to sports, such as concerts, ice shows and circuses. Planning principles dictate that for an arena facility intended for multiple uses, the regular event generating the largest parking demand should be the basis for determining parking provisions. For example, NBA basketball is considered to be an event that would occur with regularity.

The other important factor that should be considered in planning parking for an arena is the maximum seating capacity. In this study, two alternative seating capacities were analyzed. The first would provide 17,500 seats; the second alternative would provide 20,000 seats.

Parking Demand Estimates

The project proposes to provide 6,625 parking spaces on-site. The parking demand estimates for the 17,500 and 20,000 seats arena alternatives for evening, full-capacity attendance are shown in Table C-11. The 17,500 seat arena would need 5,600 parking spaces either at the arena site or within a reasonable walking distance. Similarly, the 20,000 seat arena would require 6,400 parking spaces. Weekday afternoon events would occur approximately two to ten times per year. The average attendance for these afternoon events would be between 10,000 and 12,000 persons (Coliseum Consultants, 1987). The matinee events would require 2,610 parking spaces.

2. Parking Supply

The parking demand for an arena can be satisfied in a number of different ways, depending on the day and the time the events are held. Some of the methods to satisfy the arena parking demand include the following:

- Provide parking on-site
- Use the existing surrounding parking supply that is within an acceptable

walking distance and has no concurrent parking demand

- Provide a remote parking area with a shuttle service to the arena

To satisfy the parking demand for the project site, the first of the three strategies was adopted, because there is no large supply of parking available within a reasonable walking distance.

Due to the site's suburban location and because there is no other parking supply in the vicinity, it is recommended that for the 17,500 attendance level there should be a minimum of 5,600 parking spaces provided on-site. For the 20,000 attendance level, a minimum of 6,400 parking spaces should be provided on-site. The project proposes to provide 6,625 parking spaces on-site. Therefore, the proposed project would not have a significant impact on parking.

TABLE C-11

ARENA PATRONS MODE OF ARRIVAL AND PARKING DEMAND -- SITE C

Attendance	Bus Users (Persons)	Car Users (Persons)	Required No of Parking Spaces
Evening and Weekend Events			
17,500	350	17,150	5,720
20,000	400	19,600	6,530
Weekday Afternoon Event			
11,000	550	10,450	2,610

MITIGATION MEASURES

There are no significant parking impacts that would result from the project and threfore no mitigation measures are proposed.

D. PEDESTRIAN AND NEIGHBORHOOD ANALYSIS

EXISTING SETTING

The project site is located in an area with abundant undeveloped land. Three major developments in the proximity of the project site include:

- The Santa Clara County Transit District Bus Maintenance Facility
- "Mobile Parks West" Mobile Home Park
- Agnews State Hospital (east area)

POTENTIALLY SIGNIFICANT IMPACTS

Two types of neighborhood impacts are anticipated if the proposed arena facility is located in a neighborhood area. The first impact is the use of surrounding roadways for parking by arena patrons. The second impact is the infiltration of arena traffic on local roadways.

Due to the project site's location and the current development patterns in the area, neither the parking nor the traffic impacts are anticipated in the adjoining neighborhoods. The mobile home park has its access road connected to North First Street. Therefore, there would not be any direct traffic impact on the mobile home park.

Agnews State Hospital is located south of the proposed site and has its entrance and roadway system designed in such a way that it is easy to monitor the arena patrons if they attempt to park at the hospital parking lots or on its roadway system.

Under the existing development pattern, the parking and neighborhood traffic impacts associated with the arena are expected to be negligible. However, as future development proceeds on the surrounding vacant parcels, it will be necessary to plan and design the roadway system in such a manner so that the arena traffic cannot infiltrate the neighborhood roadways.

The proposed project would not have a significant impact on the pedestrian and neighborhood environment.

MITIGATION MEASURES

There are no significnat pedestrian impacts that would result from the proposed project and therefore no mitigation are proposed.

E. AIR QUALITY AND CLIMATE

EXISTING SETTING

The air quality of a given area is not only dependent upon the amount of air pollutants emitted locally or within the air basin, but also is directly related to the weather patterns of the region. The wind speed and direction, the temperature profile of the

atmosphere and the amount of humidity and sunlight determine the fate of the emitted pollutants each day, and determine the resulting concentrations of air pollutants defining "air quality."

1. Regional Climate

The San Francisco Bay Area climate is a mediterranean type, characterized by mild and rainy winters and warm and nearly-dry summers. There is a high percentage of sunshine, especially in the summertime after the typical morning fog burns off. The temperature, humidity, wind and precipitation throughout the year depend entirely upon the movements of marine air, the location and strength of the dominant Pacific high-pressure system and the coastal temperature gradient.

During the summer months, the Pacific high typically sits near the California coast, pushing oncoming eastbound storm systems to the north through the Northwest United States and Canada. Subsidence of warm air aloft, associated with this system, creates the frequent summer atmospheric temperature inversion and stagnated conditions. The persistent reversal of the normal atmospheric temperature lapse rate (change with temperature) may be several hundred to several thousand feet thick, effectively trapping pollutants emitted at ground level. Winds during the summer months are generally light, except for late afternoon, on-shore flow from differential heating between the cool ocean and the warm land mass. Average temperatures increase as distance from the Golden Gate increases. Average maximum temperatures during the summer months are near 80 degrees Farenheit in the South Bay Area, and average evening minimums are near 50 degrees Farenheit.

During the winter months, the Pacific high pressure system moves southward, allowing ocean-formed storms to move through the region. With the dominance of the unstable low-pressure systems during the winter, and less sunshine, conditions favoring smog formation are at a minimum. However, radiation cooling during the evening hours sometimes creates thin inversions, concentrating carbon monoxide emissions at ground level. Average maximum winter temperatures in Santa Clara County are approximately 60 degrees Farenheit, and average evening lows are approximately 40 degrees Farenheit.

Lying in the rain shadow of the Santa Cruz Mountains, the South Bay Area receives only two-thirds of the precipitation which falls upon San Francisco, and one-quarter of that falling in the coastal mountains. Very little rain falls in the months of May through October (usually near 0.5 inches). The majority of the rainfall comes in the months of December through February (approximately 3.5 inches per month in normal rainfall years). The average annual rainfall in the South Bay Area is 13 to 15 inches.

2. Wind Characteristics in the South Bay Area

Wind in the South Bay Area is predominately from the northwest, as shown in the summary of wind data for downtown San Jose (Table C-12). The northwesterly winds are a result of ocean-driven flow coming through the Golden Gate and toward the South Bay. During mid-winter months, southeasterly winds are present nearly 40 percent of the time, due to frequent low-pressure storm fronts and their characteristic counter-clockwise flow. Calm conditions occur nearly 13 percent of the time during the winter months, but only five percent during the summer months.

TABLE C-12

WIND DIRECTIONS IN PROJECT AREA

	Direction	% of Time	Mean Speed (mph)
Annual Distribution			
	NE	3.1	1.5
	E	0.5	1.4
	SE	16.9	2.7
	S	19.2	4.2
	SW	6.8	2.2
	W	1.1	2.5
	NW	40.7	4.3
	N	2.9	2.4
	Calm	8.9	---
		100	3.3
Winter Distribution			
	NE	2.9	1.5
	E	0.5	1.4
	SE	20.8	2.6
	S	23.5	4.4
	SW	7.9	1.9
	W	1.5	2.4
	NW	28.1	3.9
	N	2.1	2.6
	Calm	12.7	---
		100	3.0
Summer Distribution			
	NE	3.0	1.5
	E	0.4	1.5
	SE	11.4	3.0
	S	17.4	4.3
	SW	5.4	2.6
	W	0.6	2.9
	NW	52.8	4.6
	N	3.9	2.4
	Calm	5.1	---
		100	3.8

SOURCE: Environmental Consulting Services (1987)

Average wind speeds in the downtown San Jose area are less than 5-miles per hour on an annual average basis. The highest wind speeds occur during the late afternoon on-shore cooling in the summer months, and during the winter storms. During storm periods, winds frequently gust at 20 to 30 miles per hour.

3. Ambient Air Quality

Air quality near the project site is subject to the problems experienced by most of the San Francisco Bay Area, and particularly the southerly portion. Emissions from millions of vehicle-miles of travel each day often are not mixed and diluted, but rather trapped near ground level by a temperature inversion. Prevailing air currents generally sweep from the mouth of the Bay towards the south, picking up and concentrating pollutants in the basin around San Jose and the Almaden Valley. A combination of emissions in the South Bay, the transport of pollutants from other areas and the natural mountain barriers (the Diablo Range to the east and the Santa Cruz Range to the west) produce high concentrations which sometimes exceed ambient air quality limits established by the Bay Area Air Quality Management District (BAAQMD). The most recent air quality data from the nearest BAAQMD monitoring station on Fourth Street in San Jose, and the ambient standards presently in effect, are tabulated in Table C-13.

Ozone, the primary oxidant "smog" component, is produced by complex reactions of hydrocarbons and NOx in the atmosphere. Daily ozone concentrations are heavily dependent upon the weather, and thus vary substantially from year to year. Since the adverse atmospheric conditions in 1978, when 12 exceedances were recorded in San Jose, high oxidant days have been significantly lower. However, 1983 and 1984 were unusually warm and stratified ozone seasons, with nine and seven exceedances, respectively. The 1985 and 1986 summer weather was cooler and had a more-normal ventilation pattern, bringing ozone exceedances back down. The three year Expected Annual Exceedance value (average of the last three years) is now 3.3.

Another problem pollutant in the South Bay Area, carbon monoxide, like oxidant, is heavily dependent upon both vehicle emissions and weather. High CO concentrations in the South Bay occur mostly during winter evenings with little wind. Exceedances of the 9-parts per million (ppm), eight hour ambient standard increased to 17 during 1985 in San Jose, the highest number of exceedances since 1979, but dropped again in 1986, to four incidents. Both CO and oxidant have been reduced significantly by improved emission controls on new automobiles in the past decade.

Total suspended particulates, produced by vehicles, heavy industry and soil-moving activities, dropped impressively in 1983, but heavy construction in downtown san Jose has produced high concentrations since 1984. The ambient standard for 24 hour sampling has been exceeded a significant number of the days tested in downtown San Jose for the past three years. These readings are not considered representative of the general San Jose exposure, but they are probably fairly representative of the nearby project area.

Sulfur dioxide is primarily associated with chemical and refining industries, and has never approached the ambient standard in the San Jose area, nor have sulfur dioxide standards been exceeded anywhere in the District since 1976.

TABLE C-13

EXISTING BAAQMD AIR QUALITY DATA (FOURTH STREET STATION)

POLLUTANT	1984	1985	1986	Standards	Measurement Units
OZONE					
Maximum	16	14	14	12(1)	pphm, 1-hr ave
Exceedances	7	2	1	1	days per year
3-year average	5.3	6.0	3.3	1	Expected Annual Exceedances
CARBON MONOXIDE					
Maximum 8-hour	20	21	11	9(2)	ppm, 8-hr ave
8-hour exceedances	5	17	4	1	days per year
NITROGEN DIOXIDE					
Maximum	18	19	16	25(3)	pphm 1-hr ave
Exceedances	0	0	0	1	days per year
TOTAL SUSPENDED PARTICULATES (6)					
Annual mean	46	53	50	60(4)	annual geomet. mean
Daily exceedances	0	1	0	1(5)	% of days above 150 ug/m^3

NOTES:

(1) Federal standard; State standard is 10 pphm.
(2) Federal and State ambient standard; State standard is also 20 pphm for 1 hour.
(3) State standard; Federal standard is 5 pphm annual average.
(4) State standard; Federal standard is 75 ug/m^3
(5) Federal standard; State standard is 100 ug/m^3, measured as thoracic particles (small diameter).
(6) Measurements from Moorpark Ave station, San Jose.

Source: BAAQMD monitoring data -- 4th Street station, San Jose.

Nitrogen oxides are produced heavily by vehicles and high-temperature industrial operations, but as yet have not posed serious problems in the region. The South Bay Area often has the highest NOx concentrations in the District, however.

Because there are exceedances of some ambient standards in the Bay Area, the District has been designated a Non-Attainment area by the United States Environmental Protection Agency (EPA) for CO, ozone and total suspended particulates. All significant sources in the District must share responsibility for each basin exceedance, including those locations where air quality is good.

4. Odor

The project site is located southeasterly of the San Jose Water Pollution Control Plant (WPCP). Odor problems have been reported in Milpitas, east and southeast of the plant. Odor problems appear to be greater in this area than in other areas near the WPCP. The plant maintains an ongoing monitoring program for odor problems.

While odors unquestionably occur in the vicinity of the WPCP, the sources of all of these odors have not been clearly identified. There are a number of potential sources of odor in the project area, including:

- Open WPCP in-plant processes;
- WPCP sludge storage lagoons;
- Sewer line backups during wet weather;
- Newby Island sanitary landfill;
- Nine-Par Sanitary landfill operation;
- Briquet factory (using peach pits to manufacture charcoal); and
- Natural odors from baylands and marsh areas.

While it is not presently possible to qualify what portion of the odor problem is attributable to the WPCP, the primary sedimentation basins, sludge thickening facilities, sludge storage lagoons and other open treatment processes do emit odors.

The WPCP is completing intermediate-term improvements and sludge-handling improvements which should result in significant odor reduction problems.

POTENTIALLY SIGNIFICANT IMPACTS

Vehicle-trips carrying patrons to and from events at the proposed arena facility are the primary sources of emissions associated with the implementation of the project. The trip profile associated with the arena facility is an incoming group of vehicles (anticipated to be one vehicle for every three arena patrons) in the 90 minutes prior to the event starting time, and the reverse trip pattern in the 60 minutes following an event. This profile is essentially superimposed upon the existing commute-based traffic pattern. The peak arrival traffic for a normal weekday evening event is expected to follow the PM peak commute period, but not coincide with it.

Other types of air quality impacts associated with the proposed project, such as stationary sources of pollutants include heating system emissions, which represent a

minimal contribution. Potential dust and particulates generated during site preparation and grading may be controlled by routine application of water and/or road oil.

Particulates generated by roadway resuspension are relatively small amounts very near the roadway. Although it is possible to estimate a range of values for these contributions, the estimates would have little validity except under specific and controlled conditions not found in actual practice.

1. Sensitive Receptor Locations

Sensitive receptors for potential air quality impacts of the proposed project are primarily the Agnews State Hospital complex, located south of the project site, and a mobile home park, located on the westerly side of Zanker Road, just opposite the project site. These sites were selected as representative sensitive receptor locations for evaluation.

The extent to which these locations would be affected by the proposed project is evaluated in the following sections. Other receptor locations in the project area would experience similar or lesser impacts.

2. Data and Methodology

Vehicles are responsible for the emission of a number of pollutants: carbon monoxide (CO), hydrocarbons, particulates, NOx, and others. The most widely used method of evaluating the potential impact of project-related vehicles is the modeling of the concentration of CO at nearby sensitive receptor locations.

Vehicular carbon monoxide emissions are directly related to the number of vehicle trips and to the average vehicle emission rate. Newer vehicles have lower emission rates than older vehicles because of better emission controls. In addition, average emissions per mile decrease as average speeds increase. But after the pollutants are emitted, atmospheric conditions control pollutant mixing, dispersion and the ultimate concentrations achieved. These interrelated factors are considered in a simplified way by roadside CO dispersion modeling.

The CALINE 3, multiple line-source model used for this study was developed by the California Department of Transportation, based upon standard Gaussian diffusion relationships (Turner, 1970). In basic terms, CALINE takes emissions from major arterials in the area, under stagnated atmospheric conditions and low wind speed, and sums the contributions of major roadways at selected receptors for various wind directions.

To evaluate the potential air quality impacts, five traffic conditions were evaluated and compared, based upon the traffic study prepared for this project by Barton-Aschman Associates, Incorporated (1987).

- Existing 1987 traffic
- Year-1991 Base traffic (without project)
- Year-1991 traffic (with 20,000-patrons attending)
- Year-2000 Base traffic (without project)
- Year-2000 traffic (with 20,000-patrons attending)

3. <u>Impact Analyses</u>

Carbon monoxide concentrations at the two receptors were modeled during the PM peak hour for each of the traffic conditions and for the eight wind conditions. The eight wind conditions provide a representative scenario for yearly conditions in the project area. Emissions are accumulated by CALINE from each of 13 roadway segments ("links") in the project area. CO concentrations for the wind directions giving the highest values are listed in Table C-14.

Table C-14 shows one hour average concentrations modeled. Traffic associated with the proposed project will not increase air quality concentrations at residential receptors in the vicinity of the project site in any significant way. This is because project traffic volumes will be distributed on a number of access roadways in the area, while average emissions per vehicle continue to be reduced, as newer vehicles with superior emission controls replace older vehicles.

Background concentrations are the combined result of vehicular emissions from all roadways in the project area. This was based upon BAAQMD Assessment Guidelines. The total CO concentrations under stagnated atmospheric conditions are the sum of local background plus the modeled concentrations, which would not appear to cause the State ambient standards to be exceeded, with or without the proposed project.

However, some simplifications are made by the modeling procedure, one of which is to assume a constant lower-speed traffic flow during PM peak hour conditions, rather than stop-and-go cycles. At some congested intersections, emissions could be higher than modeled. In addition, under severe atmospheric stagnation which occurs a few times a year (i.e., near-zero wind speeds and a very low atmospheric inversion, which cannot be modeled in a straight-forward fashion), ambient standards could be exceeded. To the extent that the proposed project events coincide with these stagnation periods, the project would contribute to increased local CO concentrations at a time when ambient standards are exceeded throughout the South Bay region.

4. <u>Total Project Emissions</u>

Another way of assessing potential impacts is to estimate the total daily project-related vehicular emissions. The proposed arena facility will not have a consistent "daily" contribution, but an event could occur a few times per week. Total emissions are computed by considering emissions associated with the 6,500 project trips with an average trip length of 10.6 miles. Table C-15 is a comparison of total emissions for the four pollutants of concern.

Emissions are converted to tons per day to relate them to the estimated total District vehicular emissions in Year-1995. Santa Clara County emissions, as a percent of District emissions, also are tabulated for comparison (ABAG, 1982).

The total project emissions would have a nonsignificant impact on the environment.

TABLE C-14

CARBON MONOXIDE CONCENTRATIONS IN PROJECT AREA

CASE	1	2
1. Existing - 1987	0.2	0.4
2. Base Case - 1991	0.5	0.8
3. Year 1991 - 20,000	0.5	0.8
4. Year 1991 - 20,000	0.4	0.7

Local Background Concentration: 7 ppm

Ambient Standard: 20 ppm

Table C-15

PROJECT EMISSIONS

	CO	NMHC	NOx	PART
Project	0.18	.015	.019	.004
BAAQM District				
Vehicle	1430	142	183	351
Total	2160	532	486	708
Santa Clara County				
Vehicle	24%	12%	14%	12%
Total	26%	24%	18%	23%

5. Relationship of Project to District Air Quality Plan

The 1982 Bay Area Air Quality Plan presents the policies and methods adopted for meeting the mandated National Ambient Air Quality Standards in the San Francisco Bay Area. The recommended policies in the plan which would be most relevant to reviewing agencies and individual projects are designated "Transportation Control Measures", acknowledging the primary role vehicles play in the air quality control problems and their solutions.

6. Parking-Related Air Quality Impacts

In addition to the emissions generated by the arena patrons driving to and from the proposed site, short-term emissions incidents would be produced while the vehicles are entering and leaving the parking lots, particularly while leaving. After an event, patrons leave essentially at the same time, with many vehicles idling while in queue to exit a parking lot. This section discusses concentrations adjacent to the proposed parking areas, following an event.

7. Odor Impacts

There are several potential sources that may have odor impacts on the project site. These impacts would vary be wind conditions, time of year and other weather factors. The greatest impact would be on outdoor activities associated with arena events such as pedestrian walking and tailgate parties. However, the potential for odor is not seen to create a significant nuisance on such activities and is intermittent. Monitoring by facilities and agencies would continue with development of programs to reduce such impacts.

This is seen to be a less than significant impact from odor. There is no mitigation included in the project.

Parking Lot Idling Emissions

Assuming poor atmospheric conditions (1-meter per second wind speed, a full lot of vehicles idling at once), the proposed surface parking area adjacent to the westerly side of Zanker Road would generate an approximately 11 parts per million concentration of CO.

The proposed project would have a less than significant impact on air quality.

MITIGATION MEASURES

Mitigation thresholds for potential air quality impacts are described and classified by type of project in the BAAQMD Assessment Guidelines (1985). As stated, the proposed San Jose Arena project is below the Category C mitigation threshold for planning actions affecting any facility generating more 5,000-vehicles.

Measures relevant to the proposed arena facility, taken from the full-range of potential air quality mitigation measures described in detail in Section IX of the new BAAQMD Guidelines (1985), are summarized in the following paragraphs. The recommended mitigations should be given serious consideration for implementation by the City of San Jose prior to the commencement of construction of the proposed project. The recommended transportation-related mitigations should be considered by both the City of San Jose and Santa Clara County transportation planning agencies.

- Include bicycle and pedestrian pathways, safe bicycle routes and secure bicycle storage facilities at the proposed arena facility. **(Not Presently Included in Project)**

- Additional transit stops, bus turn-outs and shelters, passenger amenities and special bus and carpool lanes should be provided wherever possible. **(Not Presently Included in Project)**

- Implement traffic engineering changes which improve traffic flow, such as more lanes, turning lanes and signalization of intersections, as needed. An average vehicle speed of 5-miles per hour can achieve a 20-percent reduction in CO and hydrocarbon emissions. **(Not Presently Included in Project)**

- Achieve maximum efficiency through a properly designed site plan (for circulation purposes). **(Not Presently Included in Project)**

In practice, the effectiveness of any mitigation measure is directly proportional to reductions in traffic flow congestion and to the number of drivers that are willing to give up single-occupant travel. Actual reductions in emissions vary between 1- to 15-percent, depending upon the measure. Clearly, the ef fectiveness of transportation alternatives is improved as the alternatives are made more attractive to motorists, relative to travel in single-occupant vehicles.

F. COMMUNITY NOISE

1. Existing Noise Levels

The existing noise environment at the project site is created primarily by traffic noise from Zanker Road and State Route 237. To determine the existing noise levels, continuous recordings of the sound levels were taken at two locations, corresponding to the north and west setbacks of the proposed arena (see Figure C-7). The noise level measurements were made on April 28 and May 26, 1987, for a total period of 15 hours, with representative hours during the daytime and nighttime periods. The primary instrument used for the recordings was a Gen Rad Company Community Noise Analyzer, which computes and yields by direct readout a series of descriptors of the sound levels versus time. The results of the recordings for the measurement locations are presented in Table C-16. The descriptors shown in the table are the L_{10}, L_{50} and L_{90} (i.e., those levels that are exceeded 10 percent, 50 percent and 90 percent of the time). Also shown are the maximum and minimum levels, and the continuous equivalent level (L_{eq}), which is used to calculate the day-night level (L_{dn}). The day-night level is a 24 hour noise descriptor used by the City of San Jose noise standards to define acceptable noise environments. The L_{dn} is calculated as a decibel average of the measured L_{eq} values, with adjustments applied to represent average traffic conditions, utilizing procedures developed by the Highway Research Board. The L_{dn} has a daytime period (7:00 AM to 10:00 PM), and a nighttime period (10:00 PM to 7:00 AM), with a weighting factor applied to the nighttime period to account for the increased sensitivity to noise during the nighttime hours.

As shown in Table C-16, the L_{eq} values ranged from 50 to 61 dBA at the Zanker Road measurement location, and from 54 to 63 dBA at the State Route 237 location. Calculation of the L_{dn} values revealed existing levels of 59 dB L_{dn} at the setback location along Zanker Road, and 63 dB L_{dn} at the setback location along State Route 237.

TABLE C-16

MEASURED NOISE LEVELS AT TWO LOCATIONS

FOR ARENA SITE C

APRIL 28 AND MAY 26, 1987

Location and Time Period	Noise Levels, dBA					
Loc. 1: 200 feet from Edge-of-Pavement of Zanker Road	L_{max}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}
2:15 - 3:15 pm	79	62	57	53	48	61
3:15 - 4:15 pm	80	59	57	54	50	58
4:20 - 5:20 pm	78	59	55	52	48	58
8:30 - 9:30 pm	76	54	49	46	41	54
9:30 - 10:30 pm	73	54	48	47	41	52
10:30 - 11:30 pm	66	53	50	46	41	51
11:30 pm - 12:30 am	62	52	49	45	40	50
Loc. 2: 400 feet from the Edge-of-Pavement of State Route 237						
2:20 - 3:20 pm	85	65	58	53	49	63
3:20 - 4:20 pm	79	63	60	57	51	61
4:25 - 5:25 pm	80	64	61	58	54	63
5:30 - 6:30 pm	85	65	58	54	50	63
8:30 - 9:30 pm	72	57	53	49	45	55
9:30 - 10:30 pm	75	58	54	51	45	56
10:30 - 11:30 pm	69	57	53	50	44	54
11:30 pm - 12:30 am	65	57	53	50	44	54

SOURCE: EDWARD L. PACK ASSOCIATES(1987)

NOISE MEASUREMENT LOCATIONS

FIGURE C-7

As reported by the San Jose Planning Department, the General Plan designation for the site, as well as the surrounding area east of Zanker Road and south of State Route 237, is for public and quasi-public land uses, including arenas. Other areas surrounding the site are designated for industrial uses, with the exception of the mobile home park. Noise standards contained in the Noise Element of the San Jose General Plan apply to all new development within the City of San Jose. The standards specify an exterior noise limit of 60 dB L_{dn} for public, quasi-public and residential uses, and 70 dB L_{dn} for industrial uses. When levels are over these limits, the project would be considered incompatible unless adequate acoustical mitigation can be provided.

2. Noise Standards

The noise compatibility standards for public buildings and recreational uses, including arenas, are contained in the Noise Element of the City of San Jose General Plan. The City's acceptable noise level objectives are 55 Ldn as the long-range exterior noise quality level, 45 Ldn as the interior noise quality level and 76 Ldn as the maximum exterior noise level necessary to avoid significant environmental effects.

POTENTIALLY SIGNIFICANT IMPACTS

Noise level impacts associated with the proposed project involve both project-generated impacts and noise impacting the project. Project-generated impacts include increased noise levels from project-generated traffic on Zanker Road and State Route 237; noise impacts generated by the arena from crowds, loudspeaker systems, and other sources while the arena is in use; and construction noise impacts. Noise impacting the project would be generated by traffic sources on Zanker Road and State Route 237.

1. Project-Generated Impacts

Traffic Noise

The project would generate increased traffic volumes on Zanker Road and State Route 237 in the site vicinity. During weekdays, these increases would occur during the hours of 4:00 PM to 8:00 PM and 10:00 PM to 12:00 midnight. Table C-17 shows the increases in the L_{dn} (24 hour average) that would occur under future traffic conditions, both with and without arena traffic. Table C-18 shows the increase in the L_{eq} levels during the three peak arena usage periods when arena traffic will be heaviest. These increases in the L_{eq} are based on the ambient traffic noise levels for Year-1991, without the arena.

The L_{dn} values given in Table C-17 are shown so that increases in the 24-hour average levels can be evaluated against the City of San Jose standards. The noise level increases given in Table C-18 are in terms of the L_{eq}, and indicate the peak hour noise level increases that would be experienced along the surrounding roadways. The impacts associated with these noise level increases, as determined by the U.S. Environmental Protection Agency, are listed in Table C-19.

The following is a listing of predicted impacts from an increase in the noise levels, as developed by the U.S. Environmental Protection Agency (EPA), and used to assess community response.

TABLE C-17

PREDICTED FUTURE NOISE LEVEL INCREASES

OVER EXISTING LEVELS, IN dB L_{dn}

	Noise Levels, dB L_{dn}				
		Year 1991		Year 2000	
Location	Existing	w/o Arena	w/Arena	w/o Arena	w/Arena
Zanker Road South of State Route 237	59	61	63	64	65
Zanker Road North of Montague Expressway	60	65	66	66	67
State Route 237, near Zanker Road	63	65	65	65	65

TABLE C-18

PROJECT-GENERATED TRAFFIC AND NOISE LEVEL INCREASES

OVER YEAR 1991 VALUES W/O PROJECT FOR

THREE PEAK HOUR PERIODS

Location	Time Period	Increase in Traffic Over Non-Arena Vol. %	Increase in Noise Levels Over Non-Arena Levels dBA, L_{eq}
Zanker Road	4-6 pm	15	+1
	6-8 pm	498	+8
	10 pm-12 M	1284	+11
State Route 237	4-6 pm	1	0
	6-8 pm	27	+1
	10 pm-12 M	67	+2

TABLE C-19
PREDICATED IMPACT FROM INCREASE OVER EXISTING NOISE LEVELS

Increase in Levels	Assessment	Expected Response
Less than 6 dBA	No Impact	Little comment or individual reaction
6 to 14 dBA	Some Impact	Some individual comment and reaction, no group action is likely
More then 14 dBA	Great Impact	Strong individual comment and group action

Using the above criteria, it is shown that project-generated traffic noise will have "no impact" in terms of the L_{dn} levels, but will have "some impact" in terms of the L_{eq} values for the peak hour arena traffic levels.

Arena Sound Impacts

The preliminary site plan for Site C shows an arena with a floor area of approximately 160,000 square-feet. Arenas of this size fall into the "large" category, and require large speaker systems capable of handling several thousand watts of audio power. Typical audience area levels of 110 dBA will be created at times. Thus, a potential for disturbance will exist in the areas surrounding the arena.

With a closed arena design, most of the sounds created inside the arena will be confined. However, depending on the type of material used for the different building components and the design, some types of buildings will be more sound attenuating than others. For example, if a pneumatic structure utilizing a flexible outer skin supported by air is used as the roof assembly, sound insertion losses of 25 to 30 dB are attainable, depending on the fabric. Various types of coated fabrics with widths ranging from 400 to 3,700 grams per square meter will yield sound attenuation of 25 to 30 dB at 500 Hertz sound frequencies. An arena roof of fixed, solid construction would reduce noise by approximately 30 dB or more for surface weights of one pound per square foot or more. With these types of roofs and with wall structures having minimum surface weights of one pound per square foot or more, the arena interior sound levels of 110 dBA would be reduced to 80 to 85 dBA in the near field, and 60 to 65 dBA at 500 foot distances (the approximate distance to the mobile home park directly west of Zanker Road).

Thus, the interior-to-exterior noise levels at the mobile home park will be below the maximum levels for existing traffic and therefore, would not create a significant impact to nearby residents.

Construction Phase Impacts

During the construction phase of the project, high noise levels in the site vicinity may temporarily be created. The site preparation and construction phases will generate sound levels ranging from approximately 70 to 90 dBA at 50 foot distances from heavy equipment and vehicles. The construction vehicles and equipment generally are diesel-powered and produce a characteristic noise which is primarily concentrated in the lower frequencies. Engine noise typically predominates, but additional noise originates from fans and transmission systems.

The total noise energy impacting a receptor point is dependent on the work phases of the construction process, on the distance, and on the angle subtended by the work processes at the noise receptor locations.
The powered equipment and vehicles act as point sources of sound which will diminish with distance over open terrain at the rate of 6 dBA for each doubling of the distance from the source. For example, the 70 to 90 dBA equipment peak noise range at 50-feet will reduce to 64 to 84 dBA at 100 feet, and from 58 to 78 dBA at 200 feet. Noise levels experienced at the project boundary depend on where construction occurs on the site.

Because of the proximity to other development, construction impacts from the arena facility would be temporary and would not be significant.

2. Impacts on the Arena

The arena would be subject to noise impacts from traffic sources on Zanker Road and State Route 237. The existing exterior noise levels are 59 and 66 dB L_{dn} along Zanker Road and State Road 237, respectively. Future Year-2000 noise levels will be 65 and 68 dB L_{dn} for Zanker Road and State Route 237, respectively. Accordingly, the levels at the site would be over the City of San Jose's exterior standard for Public and Quasi-Public uses. These standards require interior noise levels to be reduced to 45 dB L_{dn}. Thus, the arena building shell would need to provide 23 dB of noise reduction to meet this standard. With the building shell constructions previously described, the arena would provide, as a minimum, 25 dB of reduction. Therefore, mitigation measures will not be necessary to meet the standard provided that the building shell is designed to include the recommendations given below, and is constructed properly.

There would not be a significant impact on the arena facility.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse noise impacts identified in this analysis.

1. Project-Generated Noise

Traffic Noise Impacts

Based on the criteria for assessment of impacts, project-generated traffic noise will have "no impact" in terms of the 24-hour noise level (L_{dn}), but may

cause "some impact" when peak arena traffic noise levels are considered. The most significant impacts from project-generated traffic noise will be at the mobile home park across Zanker Road from the arena site. Noise level impacts on existing agricultural and industrial uses will be insignificant. Therefore, to shield the mobile home park residents from excessive noise, the following measures are recommended.

To reduce the 66 dB L_{dn} at the mobile home park to the City of San Jose standard of 60 dB L_{dn}, the following barrier is recommended:

- Construct a six-foot high, acoustically-effective wall or fence along the property line of the mobile home park bordering Zanker Road. Flanking barriers of six feet in height should extend along the northerly and southerly property lines for 250 feet west from the main barrier. **(Not Included in Project)**

To shield the mobile home park from the high late-night L_{eq} levels created by project-generated traffic, the following barrier is recommended:

- Construct a ten foot-high barrier along the mobile home park property line bordering Zanker Road. Flanking barrier segments should extend along the northerly and southerly property lines for a distance of 111 feet west of the main barrier at a ten-foot height, then reduce to six-feet in height for an additional distance of 467 feet. **(Not Presently Included in Project)**

If a six-foot high barrier is selected, it can be constructed of any solid material with a minimum surface weight of 1.5 pounds per square foot. If the ten-foot high barrier is constructed, it must have a minimum surface weight of four pounds per square-foot. The barrier heights are in reference to the grade elevation of Zanker Road.

Arena Noise Emission Mitigation

Noise impacts generated from within the arena (i.e., crowds, loudspeaker systems, and other sources) will vary in intensity depending on the type of roof used for the structure. Thus, with building constructions previously described, sounds emanating from the arena will not be significant, and additional mitigation measures will not be required. However, it is recommended that any openings in the arena structure, such as windows, ventilation shafts, or skylights, be designed as controllable openings, so that they may be kept closed during periods when the arena is in use, and interior-to-exterior sound transmission can be kept to a minimum. This mitigation would reduce the noise impacts to a nonsignificant level. **(Not Presently Included in Project)**

2. Mitigation of Noise Impacts on the Arena

The following measures are recommended to ensure adequate noise control for the arena:

- The arena should be designed to achieve a minimum building shell insertion loss of Sound Transmission Class (STC) 23. This rating applies to the roof, walls, windows, doorways, and all other building shell elements providing a barrier for exterior-to-interior noise transmission. **(Not Presently Included in Project)**

- No permanent, significant openings should be included between the exterior and interior seating spaces. Thus, some form of mechanical ventilation should be provided. Windows, which may be operable, and doorways should provide the STC 23 rating in the closed position. These elements should be maintained closed when the arena is in use. Vestibules may be used for doorways requiring more direct access to the exterior. **(Not Presently Included in Project)**

3. Construction Noise Mitigation

Mitigation of the construction phase noise at the site can be accomplished by using quiet or "new technology" equipment. The greatest potential for noise abatement of current equipment is the quieting of exhaust noises by use of improved mufflers. Therefore, it is recommended that all internal combustion engines used at the project site be equipped with a type of muffler recommended by the vehicle manufacturer. In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly maintained engine, drive-train and other components. **(Not Presently Included in Project)**

In addition to the source emission controls, mitigation of construction noise can also be achieved by scheduling noisy operations for the daytime hours of 7:00 AM to 7:00 PM to avoid the more noise-sensitive evening and nighttime hours. **(Not Presently Included in Project)**

A noise reduction benefit can also be achieved by appropriate selection of equipment utilized for various operations, subject to equipment availability and cost considerations. Noise levels should be a consideration in the selection of construction equipment and methods. **(Not Presently Included in Project)**

G. GEOLOGY AND SOILS

EXISTING SETTING

1. Geologic Setting

The project site is located in the Santa Clara Valley, between the base of the western foothills of the Hamilton-Diablo Mountain Range and the northeasterly foothills of the Santa Cruz Mountains in the Coast Range Geomorphic Province of Central California. Bedrock in this area is the Franciscan Complex, a diverse group of igneous, sedimentary and metamorphic rocks of Upper Jurassic to Cretaceous age (70 to 140 million years old). These rocks are part of a northwesterly-trending belt of material that lies along the east side of the San Andreas Fault system, which is located approximately 11.5 miles southwest of the project site. Geologic cross-sections of the area contained in the California Department of Water Resources Bulletin No. 118-1 (1975) indicated that the depth to bedrock in this area is in excess of 700 feet.

The Franciscan rocks are overlain, in this area, by marine and non-marine sediments of Cretaceous to Plio-Plesistocene age (80 to two million years old), which are, in turn, covered with alluvial, fluvial, lacustrine and bay deposits of Pleistocene to Holocene age (less than two million years old).

The regional geology has been mapped by Davis and Jennings (1954), Dibblee (1972), Nielson (1972), Rogers and Williams (1974) and Helley and Brabb (1971). These maps differ in scale and detail, but they generally agree that the site is underlain at the surface by fine-grained non-marine sediments of undetermined depth. The later two references divide the materials on the project site into fluvial deposits from the edge of young alluvial fans (fine sand, silt and clay), and interfluvial basin deposits (organic and silty clay).

The U.S. Department of Agriculture (1968) has mapped four agricultural soils on the project site. The four soils generally lay in broad, northwesterly-trending bands, roughly parallel to Coyote Creek. The Campbell silty clay loam lies on the westerly side of the site. This soil has an effective depth of 36 to 60 inches, and has a moderate shrink/swell potential. The next unit to the east is the Pacheco Loam, which has a depth of 60 inches and a moderate shrink/swell potential. The south-central portion of the site is occupied by the Cropley clay loam, which has a depth of 60 inches and a high shrink/swell potential. The remainder of the site is occupied by the Maho loam which has an effective depth of 60 inches and a moderate shrink/swell potential. The distribution of these materials on the site is shown in Figure C-8.

Cooper-Clark and Associates (1974) report that at the time of that study, the project area had subsided approximately five feet due to the lowering of the regional groundwater table during this century. They also show that the northwesterly corner of the project site is within an area that may be potentially inundated during unusually high tides. Two-thirds of the site has experienced flooding within historic times. Accordingly, fill was placed on portions of the site to raise it above the high water tide level. The U.S. Geological Survey base map indicates a benchmark in that corner at an elevation of 12 feet above mean sea level.

Seismic Setting

None of the references studied showed a fault on the project site. Faults mapped in the site vicinity are shown on Figure C-9.

The closest fault to the project site is the Silver Creek Fault, which has been mapped approximately 1.2 miles to the east of the Site (California Department of Water Resources, 1963), and beneath the project site by Cooper-Clark (1974). Davis and Jenning (1954) and Rogers and Williams (1974) show the Silver Creek Fault to end at the northerly end of Silver Creek Canyon, approximately five miles southeast of the project site. This fault was first mapped by Crittenden (1951) and was described by him as a branch of the Calaveras Fault.

Jennings (1975) shows the Silver Creek Fault to be a "Quaternary" fault, or one that has displayed movement between 200 and 2,000,000 years ago. The Silver Creek Fault has been designated as a potentially active fault by Cooper-Clark and Associates (1974) and the County of Santa Clara Planning Department (1975). Helley and Brabb (1971) show undisturbed Quaternary sediments in the valley across the projected trace of the Silver Creek Fault. The portion of the Silver Creek Fault near this site is not and has never been zoned under the provisions of the Alquist-Priolo Act.

The Crosley Fault has been mapped along the base of the hills, approximately 3.3 miles northeast of the site (Rogers and Williams, 1974; Dibblee, 1972). This fault

Cc CAMPBELL SILTY CLAY LOAM

CsA CROPLEY CLAY LOAM

Mg MAHO LOAM

Pf PACHECO LOAM

SOURCE: Earth Systems Consultants

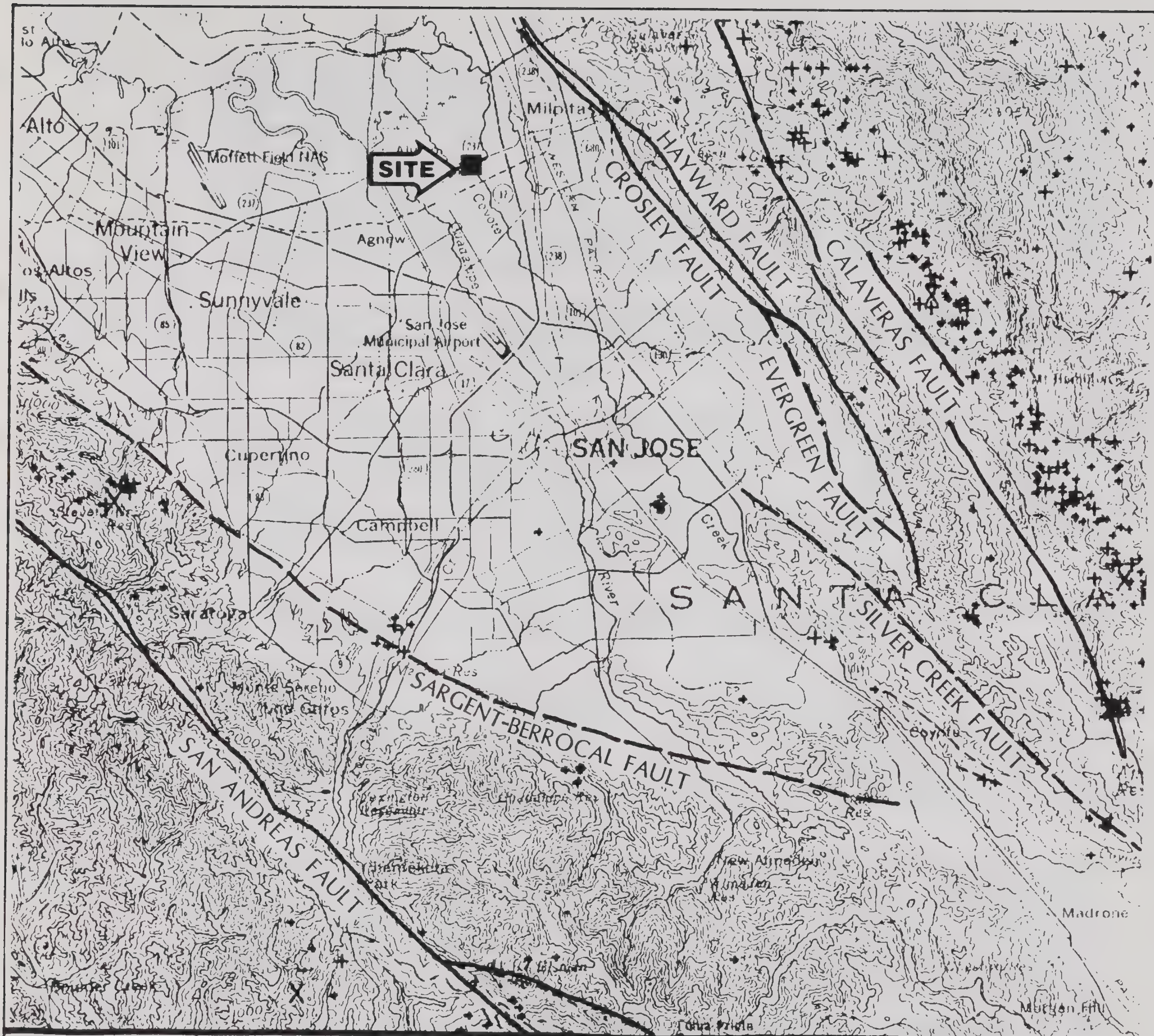
SOIL TYPES IN THE PROJECT VICINITY

N

0 3000

SCALE IN FEET

FIGURE C-8



ACTIVE FAULT

POTENTIALLY ACTIVE FAULT

EARTHQUAKE EPICENTERS OF MAGNITUDE 0.5 OR GREATER (1969-1970)

SOURCE: Earth Systems Consultants

REGIONAL FAULT MAP	N 0 5 Scale in Miles	FIGURE C-9

has been classified as potentially active by Rogers and Williams (1974) and by the County of Santa Clara Planning department (1975). Jennings (1975) shows it to be a "Quaternary" Fault, or one that has not moved between 200 and 2,000,000 years. This fault does not appear on the maps by Crittenden (1951), Davis and Jennings (1954) or Brown and Lee (1971). Dibblee (1973) was the first to map a continuous fault along the base of the hills in eastern San Jose. This exposure was surveyed and confirmed by Burkland and Associates (1977) during a study of the Minoli property, located south of Crosley Creek.

Studies along the Crosley Fault have shown it to be an active reverse fault with a variable dip to the east. Dibblee (1972) and others show the Crosley Fault to be part of the Hayward Fault system.

The active Hayward Fault has been mapped approximately 6.8 miles northeast of the project site (Dibblee, 1972; Rogers and Williams, 1974; California Division of Mines and Geology, 1982). This fault is known to be creeping in Fremont (northeast of the site), and often acts as a water barrier. Ground rupture occurred along parts of the Hayward Fault from Warm Springs northerly during the earthquakes of 1836 and 1868 (Radbruch-Hall, 1974).

The Sargent-Berrocal Fault has been mapped 10.5 miles southwest of the project site. This section of the fault is considered to be potentially active.

The Calaveras Fault, located approximately 6.6 miles northeast of the project site, and the Hayward Fault, are both part of the regional San Andreas Fault system. The main trace of the San Andreas Fault is located approximately 13.5 miles southwest of the project site, in the Santa Cruz Mountains. All three of these faults have been zoned by the California Division of Mines and Geology (1982).

A number of major earthquakes are known to have occurred in the vicinity of the project site. The October 8, 1865 earthquake (estimated Richter magnitude of 6.5) was centered on the San Andreas Fault, approximately 13 miles west of the project site. The epicenter of the October 21, 1868 event (estimated Richter magnitude of 7.0) has been located at a point approximately 14 miles northwest of the project site on a branch of the Hayward Fault. The epicenter of the earthquake of April 18, 1906 (Richter magnitude of 8.3), originally plotted in Olema, Marin County, has been relocated to a point in northern San Mateo County, approximately 38 miles northwest of the project site (real, et al, 1978). The July 1, 1911 earthquake (estimated Richter magnitude of 6.6) is plotted as having occurred approximately eight miles southeast of the project site. The location of that epicenter is uncertain, and it has not been ascribed to movement on any particular fault. The 1979 Coyote Lake (Richter magnitude of 5.8) and the 1984 Halls Valley (Richter magnitude of 6.2) earthquakes were centered on the Calaveras Fault, approximately 27 and 12 miles east of the project site, respectively. The 1986 earthquake near Mt. Lewis (Richter magnitude of 5.3) was centered approximately eight miles northeast of the project site and was not ascribed to a known fault (see Figure C-10).

During the earthquake of April 18, 1906, various forms of ground failure were reported in the vicinity of the project site. The failures reported were concentrated along Coyote Creek and consisted of ground settlement, lateral spreading, streambank failure, extensively fissured ground and sand boils (Youd

LOCATION OF EARTHQUAKE EPICENTERS

FIGURE C-10

and House, 1978). Ground shaking also caused significant damage to brick structures approximately 0.5 miles south of the project site.

The "northern ridge" over Coyote Creek, as described by Lawson (1908), is assumed to be the structure at the northeasterly corner of the project site, where State Route 237 crosses the creek. This is confirmed by Youd and Hoose (1978). The supports of the bridge were displaced in 1906. At the Boot Ranch House, 1,500 to 2,000 feet west of the bridge, water and sand erupted from the ground, which then settled 11 inches. Lurch cracking and lateral spreading were reported from various locations along Coyote Creek in Milpitas. The prolonged sand boil activity that was observed was probably the venting of artesian pressure through a lurch crack. Elevated groundwater and sand boil activity continued in an area west of the creek, 150 feet north of the bridge, for two days following the earthquake.

The Agnews State Hospital, approximately 0.5 miles southwest of the site, also sustained minor damage. All of the brick buildings at the hospital were damaged beyond repair and 112 people were killed. Roofs collapsed, and the tower of the administration building fell inward. Much of this damage was attributed to poor construction.

The project site has been classified by Rogers and Williams (1974) according to its seismic hazard potential. The site is located within their zone D1-2, which includes areas in which the groundwater table is ten to 20 feet below the surface, and where there is a high potential for seismically induced liquefaction.

Cooper-Clark and Associates (1974) have also divided the project site into hazard zones. The entire site is shown as having a high liquefaction potential. In addition, the southwest corner of the site has a moderately low potential for seismically-induced lateral ground movement and a moderately high potential for vertical movement. The banks and bed of Coyote Creek have a high potential for both lateral and vertical movement.

The map prepared for use in preparing the Santa Clara County Seismic Safety Plan (Seed, 1974) places the project site in the category of "Possible Liquefaction, Requires Investigation." This map indicates that the estimated characteristic period of the soil deposit is between 1.2 and 2.0 seconds.

Soils reports for two nearby projects were in the files of the City of San Jose Building Department. Terratech did a study at this site in October, 1976, for the bus maintenance facility. Applied Soil Mechanics prepared a report in 1984 for the business park located at Zanker Road and Tasman Drive.

However, Terratech's boring logs show layers of sand up to ten feet thick, found between 21 and 28 feet deep. There are no blow count values for most of the layers. However, there is a 2.5 foot layer of sand with only ten blows per foot in Boring No. 4 at 24 feet. This loose layer lying below the water table shows a potential for strength loss in the case of an earthquake.

Applied Soil Mechanics stated that there was a low to moderate potential for seismically-induced strength loss. Sand layers were encountered during drilling and sampling, but applied Soil Mechanics concluded that there was sufficient clay binder and fine gravel in the soil that strength loss would be inhibited. Also, a fairly uniform layer of cohesive soils, 18 to 20 feet thick, lies above the sand

layers which reduces the possibility of strength loss in an earthquake. The logs show layers of sand at depths of 12 to 20 feet and below the water table. Logs 1, 2, 3, 6 and 7 reveal sand layers with low blow counts (greater than 14 blows per foot). These are potentially weak layers.

3. Subsurface Exploration

The subsurface exploration program at the project site consisted of two phases; cone penetration testing and exploratory boring. The locations of the probes and borings were distributed to cover the entire site with a concentration around the proposed location of the arena. The approximate locations of the probes and boring are shown in Figure C-11. Access to the project site during the subsurface exploration was restricted, and the field work was confined to City-owned rights-of-way.

4. Subsurface Conditions

There are six major material types that were identified during the field investigation. However, the soil profile underlying the project site is highly variable. Some of the materials are not present in some locations, and those present vary in thickness and location below the ground surface.

Unit 1

The uppermost unit at this site appears to be a fill consisting of yellow-brown silty clay and sandy silt. This material was described in the field as damp, stiff to very stiff and having a low plasticity. Encountered in all of the borings, this material was about three-feet thick.

Unit 2

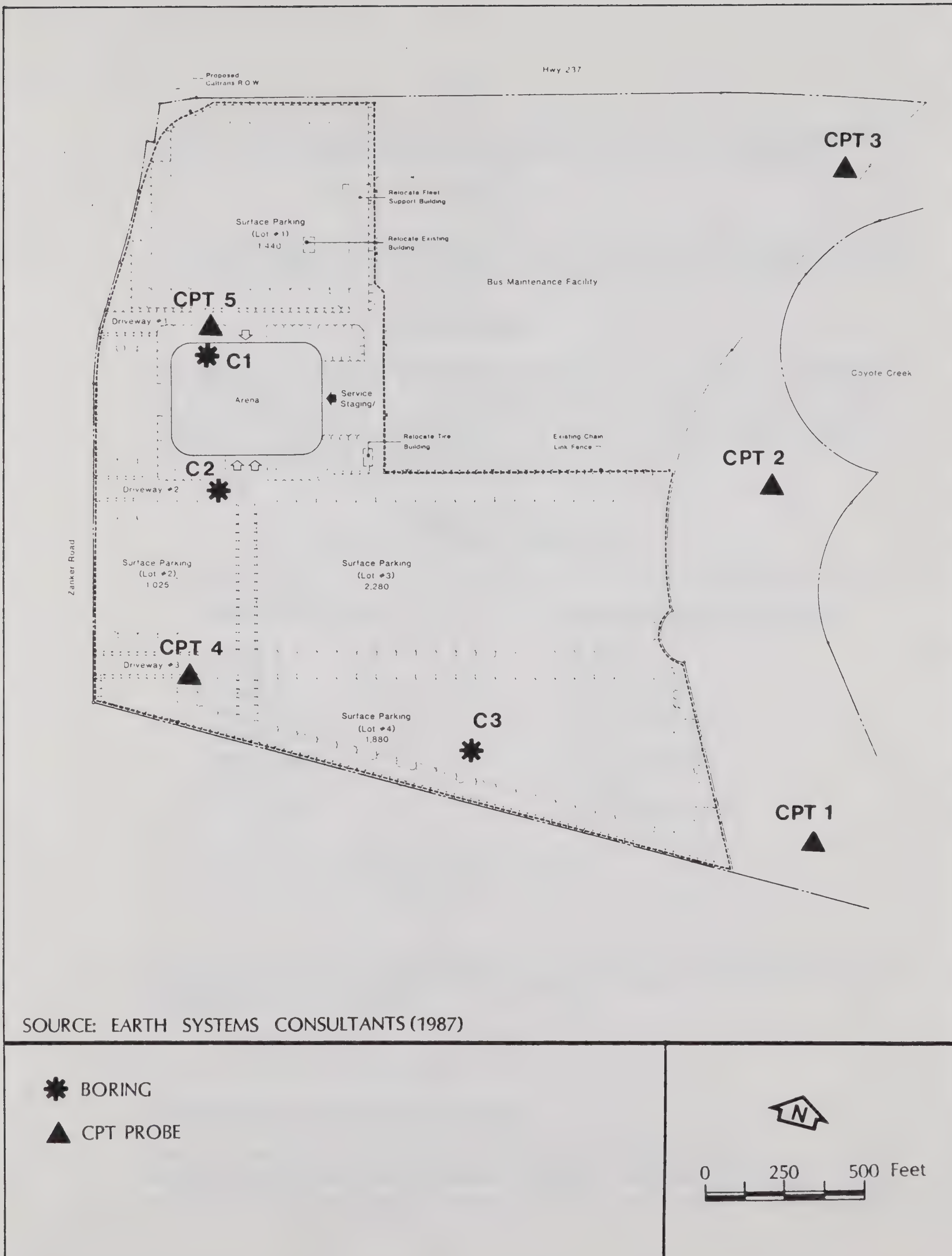
In Boring 1, the material below the miscellaneous fill was an orange-brown sandy clay. This material was moist, stiff and had a low plasticity. In Boring 1, this type of material was found at a depth of two to eight feet and again at 15 to 19 feet. In the other borings, this type of material was found between 11 and 14 feet. This indicates that the material in Boring 1, between two and eight feet, is probably fill that was borrowed from somewhere else on the site. This is in accordance with the fact that it is known that portions of the site were raised during development to prevent flooding of the Bus Maintenance Facility.

Unit 3

Below the fill in all three borings was a highly plastic, dark grey to olive-brown silty clay. This soil was moist and stiff to hard. It was found at a depth of eight to 15 feet in Borings 1, 3 and 9, and 13 to 23 feet in Boring 2 and 3 to 12 feet in Boring 3.

Unit 4

Below the highly plastic clay, granular material was encountered in each of the three borings. This material consisted of predominately tan or grey-brown silty sands, mixed with some sandy silts with clay. These materials were all saturated. In Boring 1, this material was found at a depth of 19 to 35 feet, in Boring 2 at 23 to 38 feet and in Boring 3 at 14 feet to the bottom of the hole at 43.5 feet.



GEOLOGIC BORING AND PROBE LOCATION

FIGURE C-11

Unit 5

In Borings 1 and 2, on orange silty clay with sand was located beneath the granular material. This material is moist, stiff to hard and has a low plasticity.

Unit 6

Dense sands and gravels were encountered at a depth of approximately 75 feet in CPT Probe 2 and 49 feet in CPT Probe 4. This material was approximately three-feet thick at CPT Probe 4, and was not penetrated at CPT Probe 2.

Groundwater

The groundwater level was determined during the field exploration program to vary from between four to 15 feet below the ground surface as shown in Table C-20. The groundwater level was visible in three of the borings and was determined during two of the Cone Penetration Test probes by pausing and allowing the excess pore pressures generated by the probe to dissipate.

TABLE C-20
DEPTH TO GROUNDWATER

Boring/CPT Probe	Depth Below Ground Surfaces
Boring 1	15 feet
Boring 2	10 to 14 feet
Boring 3	11 to 14 feet
CPT Probe 1	Not Determined
CPT Probe 2	4 feet
CPT Probe 3	Not Determined
CPT Probe 4	10.5 feet
CPT Probe 5	Not Determined

Source: Earth Systems Consultants, 1987

The City's General Plan contains goals and policies for Hazards that could be reduced and protect community from hazards of soil erosion, weak and expansive soils and geologic instability.

POTENTIALLY SIGNIFICANT IMPACTS

1. Response of the Soils to Seismic Loading

Some of the soils at the project site may liquefy when subjected to seismic loading. Liquefaction is a phenomenon that occurs when loose, granular soils are subjected to strong ground shaking. Under these conditions, the granular

soils will attempt to densify, resulting in the development of excess pore pressures which impedes densification. If the pore pressures cannot dissipate as rapidly as they are generated, the soil behaves like a heavy, viscous fluid. Under these conditions, the soil will loose shear strength, and if the imposed shear stresses (due to structural loading, or the presence of a nearby slope) exceed the soil strength, the "liquified" soil will "flow". This can lead to slope or foundation failures. Where the soil is confined or there are no imposed shear stresses, no movement occurs except for some possible areal or local settlement.

If the soils are only partially saturated, there is no impedance to densification, and as a result local and/or areal settlement occurs.

The susceptibility of the soils to liquefy depends on the degree of shaking to which they are subjected, the density of the soils, the amount of fine-grained material in the soils, the confining pressure (the depth below the ground surface) and the degree of saturation.

The potential ground shaking at this project site was estimated using the methods suggested by Seed and Idriss (1982). The site is located approximately 6.8 miles from the Hayward Fault (maximum probable earthquake M = 7.0), and 11.5 miles from the San Andreas Fault (maximum probable earthquake M = 8.3). It is estimated that the maximum probable earthquake on the Hayward Fault would cause 10 to 15 cycles of significant shear stress at the project site, with a maximum ground acceleration of 0.28g. Significant shear stress is defined as two-thirds the maximum shear stress developed during the earthquake. It is estimated that the maximum probable earthquake on the San Andreas Fault would cause 20 to 25 cycles of significant stress, with a maximum ground acceleration of 0.24g.

Most, if not all, of the potentially liquefiable soils at this site appear to be saturated. This is important because saturated soils liquefy much easier than partially saturated materials. Partially saturated soils may densify under cyclic loading, leading to settlement, but are less prone to a reduction in shear strength.

Liquefaction is primarily confined to granular soils with a clay content of less that 15 percent. Sieve analyses and hydrometer analyses of several of the materials suspected of being susceptible to liquefaction were performed in the laboratory to determine their grain size distribution. The results of these tests indicated that they have an insufficient percentage of fine-grained material to provide internal cohesion and prevent liquefaction.

The potential liquefiable materials at the project site appear to be wide-spread, but lenticular, and not continuous over the entire site. A loss of shear strength in these materials during an earthquake could lead to lateral spreading and landsliding along the river bank. Densification of the loose to medium-dense granular material could cause local or areal settlement, especially in the partially-saturated soils.

The loss of shear strength should not result in a loss of bearing capacity, because the potentially liquefiable soils will be well confined. This could, however, be a problem near the river and in the vicinity of the depressed loading zones.

Table C-21 shows the location of the layers of potentially-liquefiable soils identified at the project site.

TABLE C-21
POTENTIALLY LIQUEFIABLE SOILS

Boring/CPT Probe	Depth to Potentially Liquefiable Soils
Boring 1	20 to 36 feet
Boring 2	23 to 38 feet
Boring 3	14 to 43.5 feet
CPT Probe 1	None Encountered
CPT Probe 2	70 to 75 feet
CPT Probe 3	None Encountered
CPT Probe 4	30 to 31, 37 to 39 and 50 to 58 ft.
CPT Probe 5	27 to 34 feet

SOURCE: Earth Systems Consultants, 1987

It should be noted that the CPT data indicates that there is less potentially liquefiable soil at this site than is indicated by the data obtained from the boring logs. Cone penetrometers work effectively and continuously in loose, granular materials, providing an evaluation of the different horizons within a soil unit. Data from boring logs is not continuous, and is compromised by the difficulty involved in obtaining samples in saturated, loose, granular soils.

Historic evidence indicates that lateral spreading, slumping along the stream banks, lurch cracking and areal settlement can be expected in this area. The potentially liquefiable soils near the proposed arena siting are confined with a cap of 20 to 23 feet of non-liquefiable materials, and it is not anticipated that cracking will extend through this material. Therefore, sand boils and the local settlements that result when these occur would not be expected to occur in the area slated for development. The historic evidence also indicates that these problems would be more severe near the easterly portion of the site, an area that is not proposed for any type of development in connection with this project.

2. Response of the Site Soils to Loads Imposed by the Structures

Compressibility

If the proposed arena is supported on a shallow foundation, the primary response of the site soils to the loads imposed by the proposed arena facility will be to compress and cause settlement. The compressible soils that will have the most impact on this project are the Unit 2 and 3 materials. In Borings 1 and 2, which are in the immediate vicinity of the proposed location, there is a nearly uniform thickness of 20 feet of compressible material above the granular material.

Initial estimates of the settlement and differential settlement that would occur indicate that they would be within tolerable limits for this type of structure, provided that the foundation acted as a unit.

Materials Able to Support Deep Foundations

CPT Probe 2 indicates that there is a dense layer of granular material (Unit 5) underlying the project site at a depth of approximately 75 feet below the existing grade. This layer of material would probably provide excellent bearing capacity for deep, end-bearing piles. A more comprehensive field investigation program would be required to identify the extent and thickness of this layer before deep, end-bearing foundations could be considered for this site.

3. Suitable Foundation Types

Suitable foundation types for the major and minor structures proposed for this project site are discussed below. Suitable foundations must be able to sustain seismic loading, settlement due to consolidation of the underlying soils, possible areal settlement of the underlying soils during an earthquake and the loads imposed by the proposed arena. In order to provide soil design parameters, additional site investigation work will be required.

Conventional Spread Footings

Conventional spread footings may be suitable for this project if the concourse portion of the structure is sufficiently rigid that the footings will act as a unit and not independently. The differential settlement of the footings that are able to act independently due to consolidation of the upper soils and the possible dynamic consolidation of the granular deposits during an earthquake will probably exceed tolerable limits for independent footings. Unitized, conventional spread footings may be suitable for minor one- or two-story, lightweight structures such as ticket sales offices, et cetera.

Mat Foundation

If conventional spread footings cannot be adequately tied together, a nitized mat foundation may be a suitable foundation for the arena on this site. The primary advantage of this system is that the structure would respond as a unit to differential settlement of the underlying soils and could span any localized soft areas.

Compensated Foundation

The bearing capacity of the foundation could be increased, and the amount of post-construction settlement decreased, if a compensated foundation was constructed rather than a mat foundation. A compensated foundation is similar in form to a mat foundation, except that the depth of the foundation is increased. A fully compensated foundation is one where the weight of the structure matches the weight of the soil that is excavated from the site. The depth of a compensated foundation may be restricted by the groundwater level, because of the need to dewater.

Piles

Driven piles could be used to construct suitable foundation for the proposed structures on this site. The piles could be designed to develop bearing capacity with skin-friction, or by end-bearing on the dense sands and gravels found below this site. Dense soil layers that may increase the difficulty of driving piles to the bearing layer were encountered in some locations.

Drilled Piers

If drilled piers are used at this project site, it is expected that the pier holes will need to be cased to prevent collapsing, and that drilling mud may be required to prevent the saturated silty sands from blowing into the bottom of the pier hole. Unless specific structures or installations that are susceptible to vibrations caused by pile driving are identified in the vicinity of the proposed arena and parking structure, drilled piers appear to be a less-suitable foundation than driven piles.

4. Suitability of Site for Development

The proposed project, with the incorporation of mitigation, would be in confromance with the City's General Plan goals and policies for soils and geology. From a geotechnical viewpoint, this site is considered suitable for the proposed development, provided that measures are implemented during design and construction of the proposed project to mitigate the potential impact caused by the geologic and seismic conditions identified in this section.

Although a moderate to major earthquake on the Hayward, Calaveras, San Andreas or one of the other active faults in the Bay Area could produce severe ground shaking at this site, there is no evidence that an active or potentially-active fault crosses the site. Accordingly, the potential for ground rupture to occur is considered to be nonsignificant.

Therefore, the proposed project would not have a significant impact on geology and soils.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse geology and soils impacts identified in this analysis.

- The level of groundwater indicates that if the arena is to be constructed with a 15 foot basement, some dewatering may be required during construction. It is recommended that the basement be water-tight. **(Included in Project)**

- Historical evidence indicates that the banks of Coyote Creek are prone to lateral spreading and landsliding during a seismic event. Structures built in the vicinity of the creek banks should be set back a safe distance, or an engineering solution should be implemented to mitigate the possible effects of an earthquake. **(Included in Project)**

- Some of the loose, granular soils at this site may be expected to densify when subjected to strong ground shaking. This will result in local or areal settlement of the site. Near Coyote Creek, where there is an open exposed face, some of the saturated granular soils may "flow" out of the slope, causing larger settlements near the river. Structures may be built near the river bank if measures are implemented to stabilize the banks; otherwise, structures should be set back from the top of the bank. **(Included in Project)**

- The recommendations in this this section regarding suitable foundation types are based on the limited site investigation that was described in the body of this section. It is felt that this analysis is comprehensive enough to identify any adverse geotechnical conditions at the site and to determine which types of foundations would be suitable at this site. Further site investigation will be required in order to provide specific foundation design recommendations. **(Included in Project)**

- A structural engineer should be consulted to determine if the characteristic period of the site soils needs to be determined, and if a dynamic analysis of the site soils would be warranted. **(Included in Project)**

- Additional studies should include a detailed estimate of the expected settlement of the proposed arena. This estimate will require a preliminary layout of the arena columns and an estimate of their loads. This settlement estimate can be used to determine if a shallow foundation may be an acceptable foundation for the arena. **(Included in Project)**

- Additional studies should include a determination of the extent and thickness of the dense sands and gravels underlying this site, to aid in determining whether deep foundations would be suitable for this site. **(Included in Project)**

H. HYDROLOGY AND DRAINAGE

EXISTING SETTING

The project site is located adjacent to Coyote Creek, upstream of State Route 237. Coyote Creek begins in the Diablo Mountain Range east of the City of Gilroy. The Coyote Creek watershed includes approximately 350 square miles and is the largest watershed in Santa Clara County. Coyote Creek flows generally northerly through the City of San Jose, discharging to Coyote Slough and ultimately San Francisco Bay. The major tributary streams are Fisher Creek, Lower Silver Creek and Upper and Lower Penitencia Creeks (Santa Clara Valley Water District, 1984).

There are two reservoirs in the upper Coyote Creek watershed: Coyote and Anderson Reservoirs. These two reservoirs have a combined storage capacity of 115,000 acre-feet. Approximately 200 square-miles of the watershed are tributary above Anderson Reservoir. These reservoirs are operated for water supply purposes, but also provide some incidental flood control benefits due to peak flow attenuation within the reservoirs (Santa Clara Valley Water District, 1984).

The project area has a relatively mild climate, with 90-percent of the annual rainfall occurring in the late fall and winter months. January is usually the month with the most rainfall. The mean annual precipitation on the Coyote Creek watershed varies from a high of 28 inches in the Diablo Mountain Range (above Coyote Reservoir) to a low of 14 inches on the valley floor. The basin-wide average is approximately 20 inches per year (Santa Clara Valley Water District, 1984).

The upland mountainous areas of the Coyote Creek watershed have soils mainly of the Gaviota, Vallecitos and Montara associations. They range in depth from shallow to deep and are located on steep to very steep slopes. The vegetative cover includes grasses, oak, brush and hardwood. The infiltration rate of water in the upland areas is

generally very slow. The upland soils have been classified to have a high to very high erosion potential, although sedimentation rates in the reservoirs have not been high in the past. This is probably due to the relatively undisturbed character of the upland portions of the watershed (U.S. Department of Agriculture, 1958).

The soils of the lowland valley areas are of the Cropley, Ohmer, Sorrento, Zamora and Montara associations, with depths varying from shallow to moderately deep. In general, the soils drain relatively well. The lowland soils are classified as having none to slight erosion potential and have a moderate water infiltration rate. Some erosion has occurred in the stream channels and banks during high periods of runoff (U.S. Department of Agriculture, 1958).

The soils of the lower reaches of Coyote Creek, downstream of State Route 237, are of the Mocho association with depths varying from moderately deep to deep. In general, the soils are clayey and have poor surface and subsurface drainage characteristics. The soils are affected by salinity as they come into contact with tidal waters from San Francisco Bay (U.S. Department of Agriculture, 1958).

The upland portion of the watershed has very little development at this time, and the Santa Clara County General Plan calls for only nominal development in the future, with the majority of the land being reserved for open space. Henry Coe State Park, which is located in the Coyote Creek watershed, consists of open space, grazing land and hiking trails. The valley floor, which has been actively developed in the past 30 years, includes subdivisions, shopping centers and light and heavy industries. Additionally, the area has the potential for further development in the future.

The Coyote Creek channel from Interstate 880 (formerly State Route 17), north to San Francisco Bay, was constructed over time by agricultural and other interests to provide limited flood protection. Many of the levees were raised repeatedly in response to land subsidence from 1920 to 1969. The channel north of Interstate 880 is generally trapezoidal in cross-section with earthen levees. The channel banks and bottom are covered (in varying degrees) with several different vegetation types ranging from the typical fresh and saltwater marsh vegetation in the lower reaches to riparian woodland near State Route 237 (Santa Clara Valley Water District, 1984).

The Coyote Creek channel upstream of Interstate 880 has not been improved for flood control purposes. The channel is generally incised below ground level (without levees) and has a parabolic cross-section. The channel maintains an extensive riparian woodland which has generally been undisturbed by development adjacent to the channel.

Coyote Creek was studied as part of the Flood Insurance Study for the City of San Jose, completed in 1979. The channel has an estimated capacity of approximately 2,000 cubic feet per second (cfs) downstream of State Route 237 and a capacity of 5,400 cfs upstream of State Route 237, increasing to a capacity greater than 13,000 cfs upstream of the Montague Expressway. The Santa Clara Valley Water District completed an interim flood control project in 1983 to increase the channel capacity to approximately 5,000 cfs north of State Route 237 (Federal Emergency Management Agency, 1986).

Based on the Flood Insurance Study, flooding from Coyote Creek, south of State Route 237, would occur on the westerly side of the creek flowing as shallowing flooding north through North San Jose towards Alviso. The overflows from the channel would occur at Montague Expressway and in the Agnews State Hospital area. The flood overflows flow

generally northwesterly towards North First Street, then northerly across State Route 237 west of the project site. At North First Street, the flooding is joined by overflows from the Guadalupe River, south of Interstate 880 (Federal Emergency Management Agency, 1986).

Historically, the Coyote Creek has flooded frequently. Flooding was recorded as early as 1889, and major flooding occurred in 1911, 1917, 1922, 1923, 1926, 1931, 1952, 1955, 1958 and 1969 (Santa Clara Valley Water District, 1984). Most recently, flooding occurred near State Route 237 in 1982 and 1983 (Santa Clara County Valley Water District, 1982 and 1983). The most extensive flooding occurred in the 1955 flood.

All of the project site is located within the 100 year floodplain area as defined by the Flood Insurance Study (see Figure C-12). The floodplain on the project site is classified as Zone A (special flood hazard area inundated by the 100 year flood), determined by approximate methods: no base flood elevations were determined. The project area is generally subject to shallow flooding less than one-foot deep during the 100 year flood, if the Coyote Creek levees do not fail. However, if the levees upstream of State Route 237 should fail, the 100 year flood depths would be significantly deeper. The levees upstream of State Route 237 were built by private interests and were not engineered or designed to any known construction standards (Federal Emergency Management Agency, 1986).

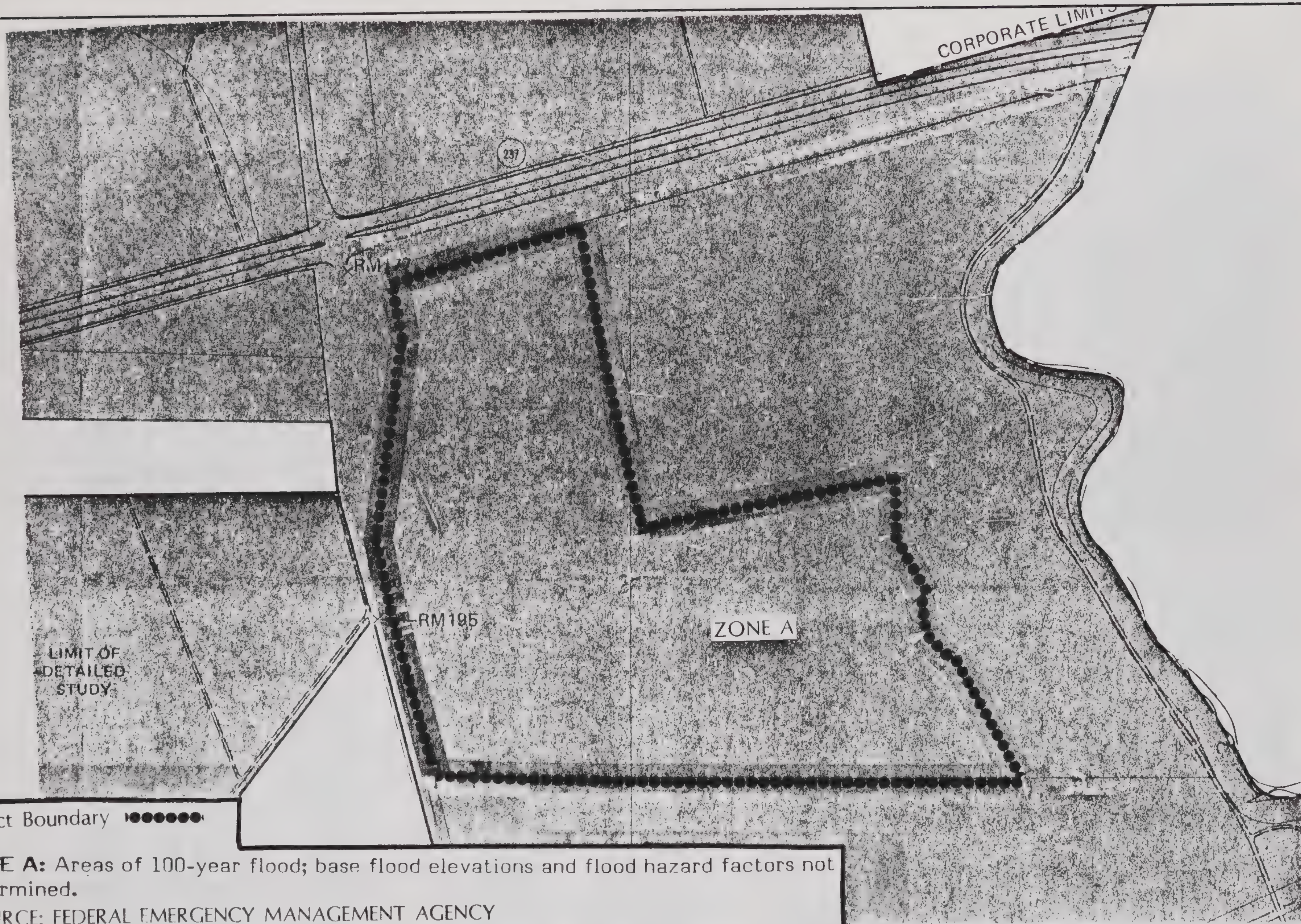
The project site is generally undeveloped under existing conditions and is predominately composed of agricultural lands and roadways, parking areas and open space associated with the Santa Clara County Transportation Agency's Bus Repair Facility. The project site drains to an open channel along Zanker Road and State Route 237, which then discharges to a detention pond at the Bus Repair Facility. The detention pond has a flap-gated outlet to Coyote Creek upstream of State Route 237. The outlet to Coyote Creek will not release if the water level of the creek is high. Runoff which exceeds the capacity of the existing drainage system flows across Zanker Road toward North First Street.

POTENTIALLY SIGNIFICANT IMPACTS

The project site lies within the existing 100 year floodplain and therefore the proposed arena facility must be flood-protected to meet the City of San Jose and Federal standards (City of San Jose, 1983). In addition, the arena, parking areas and site landscaping may affect the local flood conditions, should the project site be flood-protected with fill or berms. Flood-protecting the project site would prevent flow across the site and would increase the flow south of the site. Accordingly, this would increase the potential water surface elevations southerly and easterly of the project site.

As previously stated, the project site is generally undeveloped under existing conditions. As a result, implementation of the proposed project would increase the amount of impervious surfaces on the site. Therefore, there would be an increase in the amount of stormwater runoff from the project site. This would affect local storm drainage and may affect flow rates, sedimentation and erosion within the Guadalupe River. Additionally, flood flows from the project site may affect flood conditions in the 100 year floodplain areas westerly of Zanker Road.

The City of San Jose has proposed construction of a new storm drain along the alignment of the proposed Hogarty Drive (south of State Route 237 between North



Project Boundary ●●●●●●●

ZONE A: Areas of 100-year flood; base flood elevations and flood hazard factors not determined.

SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY

100-YEAR FLOODPLAIN ZONES

N

0 500 Feet

FIGURE C-12

First Street and Zanker Road). The proposed storm drain would serve the project site and would improve existing storm drainage conditions westerly of the project site. The proposed storm drain would flow westerly and discharge at the Oakmead Pump Station. The pump station discharges to the Guadalupe River, upstream of State Route 237. The proposed storm drain is part of the Redevelopment Agency of San Jose's drainage master plan for the project area, and it is planned for construction in 1987. The City of San Jose has a ten year design standard for storm drains. The proposed development on the project site was included as part of the City's master drainage plan for the area and will not conflict with the design of the pump station or storm drain (Lee, 1987).

The Santa Clara Valley Water District has proposed a flood control project for Coyote Creek, from San Francisco Bay upstream to the Montague Expressway, which would involve channel improvements adjacent to the project site. The proposed channel improvements would provide flood protection for the 100 year design flood-flow of 14,500 cfs. The preliminary designs for the channel improvements involve widening the earthen channel on the west side in the reach upstream of State Route 237. The east channel bank and portions of the low-flow channel adjacent to the project site would also be affected. The proposed channel widening on the west bank would not encroach into the facilities proposed as part of this arena project. The design and right-of-way requirements have not been finalized, and additional right-of-way may be required for the channel if all of the channel riparian areas adjacent to the project must be saved to obtain the necessary permits. The channel improvements are scheduled to be completed by 1993 (Santa Clara Valley Water District, 1984).

Construction on the project site may increase erosion on the site and result in sediment being deposited in storm drains and the detention pond located on the project site. As previously stated, the project site is generally undeveloped and has normal to large amounts of sediment erosion under existing conditions, depending on agricultural practices. Construction practices which disturb the underlying soils may promote sediment erosion.

From a hydrology and flooding analysis, the project site is suitable to support the proposed development, provided that mitigation measures are implemented during the design and construction stages of the project. Therefore, the proposed project would not have a significant impact on hydrology and flooding.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse hydrology and flooding impacts identified in this analysis.

- The potential flood hazard on the project site east of the Guadalupe River can be mitigated by building the arena and other auxiliary facilities which must be flood-protected on fill or by incorporating structural flood protection measures in the design of the facilities. The proposed arena should be flood-protected to a minimum elevation of two and one-half feet above existing grade to meet the provisions of the City of San Jose's floodplain management policy. To prevent any adverse effects on adjacent floodplain conditions, the surface parking areas, access roadways and landscaping areas should be at or below existing grade

elevations to allow flood flows through the project site. The City of San Jose's floodplain management policy requires that 50 percent of the site along any

north-south cross-section be available for flood flows which may cross the site in an east-west direction from overflows or a levee failure along Coyote Creek. **(Included in Project)**

- Potential sediment deposition in storm drains and channels can be mitigated by the use of appropriate construction practices. Scheduling necessary earthwork during the dry season will prevent most runoff erosion, and watering exposed soils will limit wind erosion. Earthwork during the rainy season should be separated from the street gutters and storm drains by ditches, berms or filtration barriers such as hay bails. Large soil areas should be drained to on-site sedimentation ponds to settle out the majority of the sediment before the runoff is released off-site. Roadways surrounding the construction area should be swept regularly to collect all sediment deposited on the roadways before it is washed into the storm drains or channels. **(Included in Project)**

I. VEGETATION AND WILDLIFE

EXISTING SETTING

1. Vegetation

Vegetation on and around the site was surveyed in July 1987 and was found to consist mostly of weedy vegetation or disturbed habitat with some ornamental landscaping trees planted on the bus maintenance facility and a small area of intermittent wetland vegetation in an excavated drainage ditch or swale. The drainage swale was constructed along the northerly side of the site and it drains into a retention pond in the northeasterly corner of the bus maintenance facility. The vegetation of the drainage swale include tall cyperus (Cyperus eragrostis), a few willows (Salix sp.), cottonwoods (Populus sp.) and alkali mallow (Sida leprosa). This vegetation is present in an area of approximately 0.8 acre which has water or damp and saturated soils during the rainy season.

Apart from the drainage swale, dominant vegetation over most of the remainder of the site is composed of introduced ruderal species that are mostly herbacious including farmer's foxtail (Hordeum leporinum), ripgut grass (Bromus rigidus), Italian ryegrass (Lolium perenne), Fescue (Festuca sp.), wild oat (Avena fatua), yellow star thistle (Centaurea solstitialis), Italian thistle (Carduus pycnocephalus), Chinese parsley (Heliotropium curvassavicum), bristly ox tongue (Picris echioides), Russian thistle (Salsola kali var. tenuifolia), black mustard (Brassica nigra), and pepper grass (Lepidium sp.). Across the southern sector of the site there are a few scattered shrubs consisting of coyote bush (Baccharis pilularis var. consanguinea), blue elderberry (Sambusus mexicana), mule fat (Baccharis viminea) and a few shoots of willow (Salix sp.) at one location. Other species that are present in some locations to the south of the bus maintenance facility are fennel (Foeniculum vulgare), salt bush (atriplex sp.), common thistle (

Circsium vulgare), wild radish (Raphanus sativus), ice plant (Mesembryanthemum sp.), canary grass, (Phalaris sp.), and curly dock (Rumex crispus).

There are more than 20 gum trees (Eucalyptus sp.) and other ornamental landscaping trees that have been planted on the bus maintenance facility as landscaping. Most of these trees are between four and 15 inches in diameter and less than 40 or 50 feet tall. The native coast live oak (Quercus agrifulia) has also been planted at several locations around the bus maintenance facility. In addition to the native and ornamental trees, ice plant (Mesembryanthemum sp.) and other ground covers have been planted.

Located to the west of the site, along Zanker Road there is a row of mature blue gums (Eucalyptus globulus). To the east of the site, along the Coyote Creek Channel there is a riparian woodland that includes large mature sycamores (Platanus racemosa), willows (Salix spp.), and cottonwoods (Populus spp.) as well as a substantial understory of shrubby and herbacious vegetation.

No rare, threatened or endangered plant species were found, on the project site during the field investigation (July 1987) and none are expected or reported (US Army Corps of Engineers, January 1987). No trees on the site meet San Jose's criteria for heritage trees although a few may be ordinance size.

2. Wildlife

A wildlife survey of the site conducted in July 1987 revealed that the site and surrounding area supports a variety of wildlife typically found on vacant and fallow agricultural land. This wildlife includes mammals such as Beechey ground squirrels (Citellus beecheyi), Botta pocket gopher (Thomomys bottae), and blacktail jackrabbit (Lepus californicus). Bird life includes several species ranging from mourning doves (zenaidura macroura) and western meadowlark (Sturnella neglecta) to red-tailed hawk (buteo jamaicensis), and barn owl (Tyto alba). A few of the other birds observed or expected on the site include mockingbird (Mimus polyglottos), barn swallow (Hirundo rustica), killdeer (Charadrius wilsonia), sparrow hawk (Falco sparverius), house finch (Carpodacus mexicanus), white-crowned sparrow (Zonotrichia leucophrys), and Brewer's blackbird (Euphagus cyanocephalus). The intermittent wetland may support wading birds or other species.

The wildlife habitat afforded by the site is enhanced by its proximity to the riparian corridor of Coyote Creek lying to the east and the large area of undeveloped land to the south that is now under cultivation. The presence of the fallow lands of the project adjacent to the riparian habitat allow species such as the red-tailed hawk and other raptors to perch and nest in the trees along the creek and hunt for rodents and other prey on the site. Therefore the site has habitat value both to those species that reside on it permanently or seasonally and to those species that use it intermittently for hunting or other purposes. The site serves as a large buffer between the riparian habitat and the residential and industrial development to the west of the site. The habitat afforded by the site is not rare or unique, but it does represent a diminishing resource as urban development continues to occur on the fallow and undeveloped land adjacent to riparian corridors such as Coyote Creek.

J. URBAN SERVICES

EXISTING SETTING

1. Fire Protection

The project site is currently served by the City of San Jose Fire Department. Station No. 25, located at 1590 Gold Street in Alviso, is the "first response unit" to service the project site. Station No. 25 is an engine company only, with a minimum of five firefighters on duty at all times. The average response time from Station No. 25 to the project site is approximately four minutes (Fujczak, 1987).

Station No. 5, located 1380 North 10th Street, is the "second response unit" to the project site. Station No. 5 is both an engine company and a truck company, with the truck company providing an 85 foot aerial ladder unit. Each of these units (the engine and the truck companies) provides a minimum of five firefighters on duty at all times. The average response time from Station No. 5 to the project site is approximately nine minutes. This is above the recommended response time of four minutes set forth by the City of San Jose (Fujczak, 1987).

The fireflow pressure in the project vicinity has been determined to be adequate. Currently, the fire hydrants that are located within the project site are connected to the water system operated by the Water Pollution Control Plant for the City of San Jose, located approximately one mile northwest of the project site (Overhouse, 1987).

The City of San Jose is currently in the process of preparing State legislation to lease property which is located within the confines of Agnews State Hospital, located immediately south of the project site. The need for this proposed fire station is in response to the growth that has been occurring in the north San Jose area. The City of San Jose is recommending that an engine company (five firefighters) and a aerial ladder truck company (five firefighters) be manned at this station. Anticipating the passage of this legislation, it will take approximately two and one-half years before this station will be operative (Fujczak, 1987).

The City of San Jose Fire Department participates in a mutual aid program with the Cities of Milpitas and Santa Clara. Through this program, should the City of San Jose Fire Department need assistance in addition to its own units, one or both of the mutual aid cities would provide assistance to the City of San Jose in whatever capacity was needed (Fujczak, 1987).

2. Police Services

The project site is currently served by the City of San Jose Police Department. Officers patroling the project area are dispatched from the police headquarters, located at 201 West Mission Street. The project site is located within Beat R-1 of the San Jose Police Department's service area. At any one time, there is a minimum of two trained police officers on duty in the project vicinity. Throughout Beat R-1, there is a minimum of six officers on duty at all times. All of the roadways in the project area are under the jurisdiction of the San Jose Police Department except for State Route 237, which is under the jurisdiction of

the California Highway Patrol. Due to the character of the project area (commercial buildings, limited residential dwellings), the incidence of crime in the area is very low (Burde, 1987).

The San Jose Police Department cooperates in a mutual assistance program with the Santa Clara County Sheriff's Department, the Cities of Milpitas and Santa Clara and the California Highway Patrol (Burde, 1987).

3. Water Supply

The San Jose Municipal Water Company provides water to the project site. Currently, there is a 12 inch main on Zanker Road, with two four inch lines and a ten inch fire line serving the existing bus maintenance facility. The capacity of the existing system is sufficient to accommodate the proposed arena and its auxiliary uses at this site (Kawasaki, 1987).

4. Storm Drainage

Storm drainage facilities in the project area are maintained by the City of San Jose Department of Neighborhood Maintenance. Storm water runoff through the project area flows in a north to northwesterly direction, eventually discharging into the Guadalupe River. There is no existing underground storm drainage facilities adjacent to the project site. Storm drainage from the Santa Clara County Transit Facility is collected and pumped into the adjacent Coyote Creek (Mindigo, 1987).

5. Sanitary Sewers

Sanitary sewer service to the project site is provided by the City of San Jose. There are currently two sanitary sewer mains (60 and 84 inches in diameter) located along the east side of Zanker Road. There is sufficient capacity in the existing mains to accommodate the proposed development of an arena facility on the project site (Gonzales, 1987).

6. Wastewater Treatment

The San Jose-Santa Clara Water Pollution Control Plant (WPCP) provides wastewater service to the project site. WPCP, which is located approximately one and one-quarter miles northwest of the project site, has an existing holding capacity of approximately 167 million gallons per day (mgd). The City of San Jose has a Growth Management policy which regulates new development throughout the City so that the capacity of the system is not exceeded (Environmental Assessment for the City of San Jose, 1987).

7. Natural Gas

Pacific Gas and Electric Company (PG&E) provides natural gas service to the project site. Currently, there is a 36 inch transmission line on the north side of State Route 237 and a 24 inch transmission line on the south side of State Route 237, both of which run in an east-west direction. On Zanker Road, there is an existing three inch, high-pressure line which runs in a north-south direction along the west side of Zanker Road. All natural gas utilized in the project area is funneled through the main gas control center which is located near the northwest quadrant of the Interstate 880/State Route 237 interchange (Morgan, 1987).

There is a high-pressure natural gas pipeline that crosses the project site from Zanker Road to Coyote Creek (1,350 feet south of State Route 237). The line, installed in 1957, is a 24 inch transmission line located approximately 18 to 24 inches below the existing grade. This line would not serve the project site.

8. Electricity

Electrical service is currently provided to the project site by Pacific Gas and Electric Company (PG&E).

9. Telephone

Pacific Bell provides telephone service to the project site. There are existing services in the area that can service the site (Mindigo, 1987).

10. Solid Waste

Solid waster service is provided to the project site by Waste Management of Santa Clara County. Listed below in Table C-22 are the existing landfills which Waste Management utilizes, their capacity and anticipated date of closure.

Waste Management is also able to provide resource recovery services, should the demand warrant such services (Nicoletti, 1987).

TABLE C-22
EXISTING LANDFILLS AND REMAINING CAPACITIES

LANDFILL (REMAINING CAPACITY)	ESTIMATED YEAR OF CLOSURE
Guadalupe (1,590,000 tons)	1995
Kirby Canyon (24,300,000 tons)	50-years (recently opened)
Newby Island (19,113,000 tons)	2016
Santa Clara Landfill (1,250,000 tons)	1992

SOURCE: Santa Clara County (1986)

POTENTIALLY SIGNIFICANT IMPACTS

1. Fire Protection

Existing facilities are not adequate to meet the proposed development demand for fire protection. However, with the construction of the proposed truck and aerial ladder companies at Agnews State Hospital, the facilities would be adequate to meet the demands created by the proposed arena facility (Fujczak , 1987).

As previously stated, the fireflow pressure in the project vicinity has been determined to be adequate to accommodate the proposed arena facility. Service would be extended onto the project site from the main located in Zanker Road (Overhouse, 1987).

2. Police Protection

Since the proposed arena facility will be operated by the City of San Jose, additional City police personnel will be required to monitor security at the proposed events. This additional need for police personnel could impact existing police service, thereby requiring the addition of more police personnel. However, until specific venues are arranged, it will not be known how many, if any, additional personnel will be needed. Traffic control at the end of the events could be provided by the City of San Jose and the California Highway Patrol (for State Route 237). This would assist in dispersing traffic in a timely manner (Burde, 1987).

3. Water Supply

Since the existing water service to the project site is sufficient to accommodate the proposed arena facility, no adverse impacts are anticipated (Kawasaki, 1987).

4. Storm Drainage

The City of San Jose has proposed the construction of a new storm drain along the alignment of the proposed Hogarty Drive, south of State Route 237 (between North First Street and Zanker Road). The proposed storm drain would serve the project site and would improve the storm drain facilities to the west of the site. The proposed storm drain would flow west and discharge at the Oakmead Pump Station. The proposed storm drain is part of the Redevelopment Agency of San Jose's drainage master plan for the project area. Implementation of this proposed storm drain would allow sufficient capacity to accommodate the proposed arena facility (Lee, 1987).

5. Sanitary Sewer

A worst case and average analysis were calculated by the City of San Jose to assess the impacts of the proposed arena facility. Based upon an attendance level of 19,000 patrons, it was estimated that each of the patrons would require 1.5 minutes of bathroom use (this equates to a total of 24,000 minutes). Within a 30 minute half-time period, if all 19,000 patrons needed access to the toilets, the

arena would need to have a 400 gallon per minute capacity. 400 gallons per minute in a 24 hour day (without variation in use) equals 600,000 gallons per day capacity.

This capacity would require a ten inch sanitary sewer line with a one percent hydraulic slope to the main line. There is sufficient capacity in the existing system to accommodate this flow (Tanner, 1987).

6. Wastewater Treatment

In connection with the sanitary sewer service described above, there is sufficient capacity at the Water Pollution Control Plant to accommodate the effluent generated by the proposed arena facility (Gonzales, 1987).

7. Natural Gas

The existing four inch, high pressure line on Zanker Road has sufficient capacity to provide service to the proposed arena facility. However, an existing 24 inch, high-pressure line exists on the project site. This line currently crosses the site in an east-west line. The Pacific Gas and Electric Company suggests that no structures be located within 250 feet of this easement. The proposed site plan conforms to this recommendation (Sink-Combs-Dethlefs, 1987).

8. Electricity

Implementation of the proposed arena facility would not affect existing electrical service to the project site. Pacific Gas and Electric Company's existing facilities will be able to accommodate the anticipated demand of the proposed arena (Morgan, 1987).

9. Telephone

Pacific Bell service to the project site would not be affected by the implementation of the proposed arena facility. There are sufficient facilities available to service the proposed project (Mindigo. 1987).

10. Solid Waste

The proposed arena facility would generate an estimated three to four yards (loose) of solid waste per 1,000 patrons, depending on the venue. Based upon statistics prepared by the company that provided waste collection services for the 1984 Olympics in Los Angeles, listed below are the rankings (in order) of the events that generate the most solid waste (Nicoletti, 1987):

- Boxing
- Hockey
- Basketball
- Circus
- Concerts
- Tennis
- Ice Shows

As previously stated, Waste Management of Santa Clara County is able to provide resource recovery services. However, it would be necessary for the service staff

of the proposed arena facility to separate the different resources into individual containers (i.e., paper, glass). Based on the anticipated amount of solid waste to be generated by the proposed arena facility, it would not appear that enough waste would be generated to make the resource recovery service cost-effective (Nicloetti, 1987).

Depending on the design of the proposed arena facility, waste collection could be a potential impact. The most effective method for refuse collection is the front-loading, three yard containers. Placement of these containers throughout the proposed surface parking areas would minimize the amount of loose litter, while at the same time they would expedite collection services. With regard to refuse collection for the arena facility, direct access into and out of the facility would allow for an expediant collection (Nicoletti, 1987).

Construction of the proposed arena facility would generate refuse that would need to be removed from the site. Waste Management would be able to provide debris boxes for these purposes. However, advanced notice of at least 30 days would be needed to make the proper arrangements (Nicoletti, 1987).

11. <u>Conclusion - Level of Impact</u>

The proposed project would not have a significant impact on urban services, except for fire protection, where a temporary significant impact would occur if the arena facility was completed prior to the construction of a new fire station in the project area.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse urban service impacts identified in this analysis.

- Construct Fire Station No. 29, preferably housing a truck company and and engine company. Construction of this fire station would help maintain the level of service at an acceptable level, and it would also meet the goals and policies set forth in the City's General Plan for municipal services. If the proposed fire station houses only a truck company, a mutual aid agreement for engine response should be established with the City of Milpitas to improve the first-due engine response time to the North San Jose area. **(Not Presently Included in Project)**

- Require that all rental agreements for usage of the proposed arena facility provide additional police personnel that would be required for security purposes at the facility. **(Not Presently Included in Project)**

- Construction monitoring of the high-pressure gas line crossing the site should occur. **(Included in Project)**

- Provide additional police and traffic control services to the project area during peak arena events. **(Not Presently Included in Project)**

K. AESTHETIC RESOURCES

EXISTING SETTING

1. Visual Setting

The project site, located on the southeast corner of State Route 237 and Zanker Road in the City of San Jose, is comprised of approximately 60 acres of fallow agricultural land. The topography of the site, as well as that of the surrounding area, is fairly level, with an average elevation ranging from approximately 12 feet above mean sea level in the northwest corner of the site to approximately 20 feet above mean sea level in the southeast corner (United States Geological Survey, 1973).

1. Visual Character of the Project Site

As previously stated, the project site is currently fallow agricultural land. However, this area has been used in the past to cultivate truck crops such as tomatoes, broccoli and cauliflower.

2. Visual Character of the Project Vicinity

The area surrounding the project site is somewhat similar in character, being comprised primarily of agricultural fields. Immediately adjacent to the northeasterly corner of the project site (on the south side of State Route 237) is the Santa Clara County Transportation Agency's Bus Maintenance facility. Northerly of this (on the north side of State Route 237) are agricultural fields. Agricultural fields are also located to the south of the project site. The easterly boundary of the project site is formed by Coyote Creek, which provides views of extensive riparian vegetation. To the west of the project site (along Zanker Road) is a row of mature eucalyptus trees. Beyond these trees are an existing mobile home park and a business park.

3. View Corridors

A view corridor is a vista spanning a distant area from a point of visual origin. View corridors described in this report originate from likely viewer vantage points and focus on the proposed project site. Existing view corridors are currently found from State Route 237 and Zanker Road. Additionally, the project site is very visible from land uses located on the west side of Zanker Road and from the Agnews State Hospital area (located immediately south of the project site). Views of the project site from the north side of State Route 237 are limited due to the three-foot high, solid concrete barrier located in the center median of this roadway.

2. View Opportunities

View opportunities are those views available from the project site. Due to the project site's location, there are several opportunities to view significant natural features. Figures C-13 through C-16 show the existing view opportunities available from the project site and surrounding vicinity. As previously stated,

Photo was taken from the project site looking east with the Coyote Creek in the distance.

Photo was taken from the south looking northeast with the Coyote Creek to the right and State Route 237 crossing the top of the photo.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE C-13

Photo was taken from the westside of Zanker Road looking east towards the northern portion of the project site. State Route 237 is to the left and the entrance to the Bus Maintenance Facility is to the right.

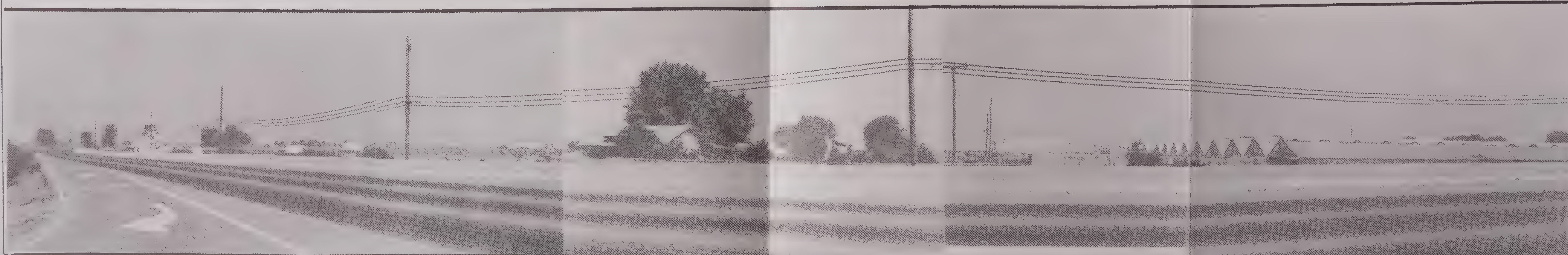


Photo was taken from the southside of State Route 237 (approximately 2,000 feet east of Zanker Road) looking north to existing agricultural uses on the northside of Zanker Road.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE C-14

Photo was taken from the southside of Route 237 looking south towards the existing Bus Maintenance Facility.
State Route 237 is to the right and Coyote Creek is to the left.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE C-15

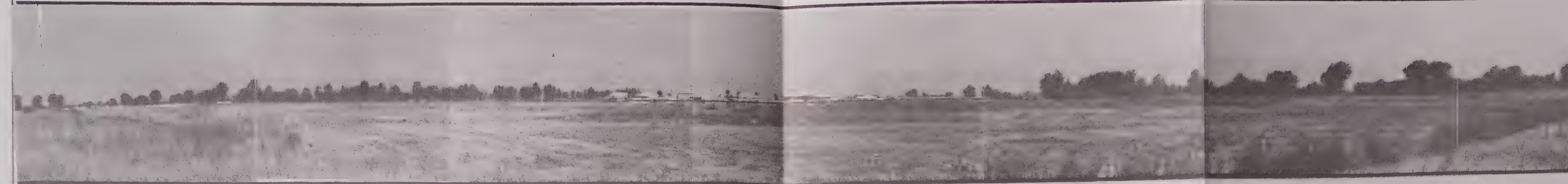


Photo was taken from the west looking east across the project site towards the County Bus Maintenance Facility.

Photo was taken from the east looking west across the project site , with the County Bus Maintenance Facility on the right.

PHOTOGRAPHIC RECONNAISSANCE OF PROJECT SITE

FIGURE C-16

Coyote Creek borders the easterly portion of the project site, providing views of the heavily vegetated riparian habitat area. The areas north (across State Route 237) and south of the project site are currently being cultivated for agricultural purposes, while the lands to the west have been urbanized with a commercial business park and a mobile home park.

POTENTIALLY SIGNIFICANT IMPACTS

1. Visual Character of the Project Site

Implementation of the proposed arena project would alter the project site from its currently under utilized state to one of an intensive public/quasi-public use of an arena and its associated facilities (i.e., roadways, parking areas, lighting standards). The land use intensity of the proposed project would be considerably greater than adjacent uses in terms of the height of the proposed arena and the intensive coverage of the site by impervious, non-landscaped areas (i.e., parking areas).

Design of the Proposed Arena Facility

At this time, there are no precise design plans for the proposed arena facility. Therefore, an evaluation of the visual suitability of the proposed facility should occur in later project design stages.

Based upon conceptual plans for the site, the proposed facility would be a single structure mass in height and scale that would significantly alter the existing vacant site. The proposed arena facility, as analyzed in this document, assumes a building approximately 350 feet wide by 400 feet in length. The height of the roof (above the existing grade) would be approximately 65 feet, and the footprint of the building would cover approximately 3.7 acres. Conformance to the City's General Plan Urban Design policies would require the highest standards of architectural and site design for the development.

Proposed Landscaping and Vegetation

At this time, there is no formalized landscaping plan for the proposed arena facility. However, it is anticipated that the City of San Jose would conform to its policies of providing trees along the public rights-of-way and throughout the proposed parking areas. An evaluation of the visual suitability of the proposed landscaping, and the extent that it buffers the proposed arena facility, should occur in later project design stages.

Surface Parking Areas

Implementation of the proposed arena facility would include the construction of 6,490 surface parking spaces. These facilities would be located on the northerly, southerly and westerly sides of the proposed arena facility. In conjunction with these parking areas, lighting standards will be installed to provide adequate lighting for pedestrians. These lighting standards have the potential to create an off-site nuisance to residents of the adjacent mobile home park.

2. View Corridors

Construction of the proposed arena facility would incrementally alter the existing view corridor opportunities of the project site. Due to the large expanses of surface parking, view corridor opportunities across the project site will be only minimally interrupted.

3. View Opportunities

View opportunities from the project site would be limited to the views that are currently available from the project site.

Although the proposed project would introduce a new, significant structure in mass and scale to the area, the size of the structure and surface parking areas would not significantly alter view corridors. The proposed project introduces a new structure in an area that is in transition towards intense urban (i.e., residential, commercial and industrial) development. Therefore, the proposed project would have a less than significant impact on the environment.

MITIGATION MEASURES

The following are mitigation measures that are proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse aesthetic resource impacts identified in this analysis.

- Further aesthetic and site evaluation of the site design should be conducted prior to the architectural review process utilized by the City of San Jose. Proposed Landscaping, exterior building materials and compatibility with adjacent land uses should be considered in the evaluation. **(Included in Project)**

- The proposed structure should minimize glare and intrusion on adjacent properties by utilizing non-glare glass and requiring lighting standards in the parking areas to be focused onto the project site. **(Not Presently Included in Project)**

- Street trees should be planted along all public right-of-way to minimize the intensity of the proposed arena facility. Additionally, all surface parking areas should be landscaped with a minimum of one 15 gallon tree for every six parking spaces (these trees would be in addition to the required street trees). Landscaping plans should be approved prior to the implementation of the proposed project. **(Not Presently Included in Project)**

- Careful siting, including setbacks and orientation, and architectural treatment of the arena facility would reduce the visual impacts of arena facility. **(Included in Project)**

- Conformance to the City's General Plan Urban Design policy to provide the highest standards of architectural and site design for the development should be implemented. **(Included in Project)**

L. ARCHAEOLOGICAL RESOURCES

EXISTING SETTING

The proposed arena project area is an approximate 60 acre parcel of land located on the southeast corner of State Route 237 and Zanker Road in the City of San Jose.

An investigation of maps and records at the California Archaeological Inventory, Sonoma, was conducted to determine if the project site had previously been inspected by an archaeologist and whether or not there were any identified historic or prehistoric sites located within the confines of the project area. No archaeological sites were recorded for the project site, although the site has been the subject of several earlier field reconnaissances, none of which discovered any archaeological materials (Holman, 1987).

Currently, the project site contains a bus repair facility, landscaping associated with the bus repair facility, fallow agricultural lands (located south of the bus repair facility) and a flood zone paralleling the west side of Coyote Creek. Historical alteration to the project area includes the construction of levees along Coyote Creek, possibly from soils excavated in the open area adjacent to Agnews State Hospital. This area appears to have been excavated to a depth of at least 10-feet below the old grade, as measured from the fields on Agnews State Hospital property and the apparently original grade surrounding the westerly side of the existing bus repair facility. Lately, massive amounts of fill have been brought in to fill in the excavated portions of the project site. Approximately five acres of land have been brought back up to the original grade, with the inclusion of construction debris and soils (Holman, 1987).

IMPACTS

Given the frequency with which subsurface archaeological sites have been identified in areas surrounding the waterways of Santa Clara Valley, a limited program of subsurface mechanical testing was conducted to determine: 1) the siltation pattern for the project area; and, 2) the potential location of buried archaeological materials in the event that siltation was identified.

In an attempt to locate buried cultural resources, a total of 34 trenches were cut at locations surrounding the existing bus repair facility. Additionally, locations both inside and outside the areas slated for the proposed arena development were analyzed for potential cultural resources. Cut with a 24 inch backhoe bucket, the trenches were excavated to an average depth of ten feet below surface, with the cuts averaging ten to 15 feet in length. All soils removed were inspected for cultural resources, and the backhoe trench walls were further inspected to determine stratigraphy. Trenches 6, 8, 11 and 26, cut in areas of recent fill, were taken below the level of the historic dumping down to the clay level seen throughout the property. This mixture of silt and clay was evident from the surface down to a depth of 10-feet inside the trenched-out area found adjacent to the Agnews State Hospital fence (property) line (Holman, 1987).

With the exception of the areas where historical debris is evident from the surface on down, the soils of the project area consist of a variation of sandy silt to clay loam mixed with river gravels. This pattern changes in the extreme northeasterly corner of the project site (outside of the arena development area), where trenches 33 and 34 exposed

some indications of cultural materials. From 60 to 100 centimeters below surface in trench 33, samples of fresh water mussel fragments were found, along with flecks of charcoal in a dark gray-tan sandy silt matrix. Trench 34 exposed a hearth or roasting feature of small rocks and flat pebbles, all of which showed signs of being burned. Ash and coal were mixed in with this feature, along with numerous fragments of freshwater mussel and fragments of bone. The feature, which extended along the backhoe trench wall, could represent a house floor or a thin occupation layer. Scattered flecks of charcoal were identified at one other location (trench 28) at a depth of 205 to 240 centimeters below the surface, with no additional cultural materials being identified (Holman, 1987).

MITIGATION MEASURES

The northeasterly portion of the project site may in fact contain a buried archaeological deposit. In addition to the data collected from the trenches cut in this area, a surface inspection of the ground nearer to the existing bus repair facility turned up a possible human bone and a possible chert artifact, possibly brought to the surface during the construction activities associated with the bus repair facility. **(Included in Project)**

If Site C is to be adopted for the future arena facility, it will be necessary to determine if any phase or planned construction of the arena facility will necessitate earthmoving in the general area of trenches 29 through 34. **(Included in Project)**

In the event that any disturbance is planned for this general area, it is recommended that a more detailed program of subsurface testing be conducted to locate both the extent and depth of any cultural resources which may be located within the project site. Should a definable midden deposit be located, this area should be mapped for future planning purposes to assure avoidance of impacts, if at all possible. **(Included in Project)**

M. HISTORIC RESOURCES

EXISTING SETTING

1. Historical Background

At the time of the Spanish settlement of the Santa Clara Valley, the project area was included in the "ejido", or common lands of the Pueblo de San Jose. The Pueblo was established to the south of the project area in 1777, on the plain between the Guadalupe River and Coyote Creek. At that time, the project area was subject to frequent flooding and primarily served as grazing land for the Pueblo's livestock. During the 18th century, the only roadway traversing the project area linked Mission Santa Clara with Mission San Jose (located in the City of Fremont), with a fork extending south to the Pueblo of San Jose. Little more than a trail across the marshes, this roadway roughly corresponded to the alignment of the current Trimble Road.

Between 1833 and 1838, approximately 40 land grants were issued in the Santa Clara Valley. One of these was the Rincon de los Esteros, granted to Ignacio Alviso in 1838. A survey of the Alviso property identified several dwellings

associated with the Alviso occupation that were built between 1830 and 1840. All of these structures were located on the east bank of the Guadalupe River. No known resources from the Spanish period were located within the project site (Hendry and Bowman, 1940).

2. The American Period

The earliest Americans settle in the project area arrived in early 1840. Except for very limited cultivation practiced by the few settlers, no semblance of agricultural production was visible. Wild animals and game dominated the land, while the creeks and marshes were filled with various kinds of water fowl (Munro-Fraser, 1881).

Early in the American period, the Alviso-Milpitas Road (along the current alignment of State Route 237) was constructed, providing an important east-west transportation route through the project area. This road was probably little more than a trail that crossed a bridge over Coyote Creek at the northeast corner of the project site.

After the American settlers arrived in the area, the project site went through an array of land owners. Most notable was William Boots, who built a residence near the Alviso-Milpitas Road in a grove of sycamore trees near Coyote Creek. An 1874 map indicates a cluster of buildings adjacent to the creek at the sharp westward bend of the creek (County of Santa Clara, 1874). Other outbuildings were located along the creek in the southern portion of the project area. After Boots' death in 1900, his son and daughter took over ownership of the property. His son Charles continued to operate a horse breeding farm on the property until 1943, when he sold the property to the State of California for an extension of the Agnews State Hospital. The Boots' house was razed by the State of California in 1952. Other structures that existed within the project area, such as stables and barns, are no longer present. However, there are farm buildings associated with the Boots' tenures presently existing to the south of the project site near Coyote Creek.

POTENTIALLY SIGNIFICANT IMPACTS

Archival research and a surface reconnaissance of the project site indicate that there are no standing historic resources within the boundaries of the project site. Potentially significant subsurface resources may exist that include the foundations and associated waste and trash deposits various structures that have occupied the project site. It is likely that one of these buildings may have been the residence of Ah John, a long-time Chinese laborer on the Boots' farm. Deposits associated with the Chinese ethnic presence on Ah John or other seasonal laborers would be considered significant, if located.

However, based on the historic maps available of the project area, it would appears that the subsurface deposits associated with the Boots residence and farming complex are located in the vicinity of the existing County Bus Repair Facility or in the Santa Clara Valley Water District right-of-way along Coyote Creek.

Based on the development plans for the proposed arena facility, it is concluded that there would be no adverse impacts to known historical resources.

MITIGATION MEASURES

No mitigation are proposed since no singificant impacts would result from the project.

N. ENERGY CONSUMPTION

EXISTING SETTING

In order to provide a better basis for comparison, this report follows the accepted practice of assessing energy usage in terms of the thermal value or heat content of the basic resource which is consumed (California Energy Commission, 1986). A BTU is the amount of heat needed to raise the temperature of a pound of water by one degree Farenheit.

There is no existing energy use on the project site (the Santa Clara County Bus Repair Facility is not considered a part of the project site). Table C-23 delineates the existing energy consumption for the project site.

TABLE C-23
EXISTING ENERGY CONSUMPTION

USE	YEARLY AMOUNT	TBtu's/YEAR
Project Site		
Electric	-0- kw-hours	-0-
Nat. Gas	-0- therms	-0-
San Jose Residences		
Electric	1,370,000,000 kw-hours	14,000,000,000
Nat. Gas	134,000,000 therms	13,400,000,000
		27,400,000,000
All Other San Jose Users		
Electric	2,620,000,000 kw-hours	26,800,000,000
Nat. Gas	70,100,000 therms	7,010,000,000
		33,810,000,000
Total for San Jose		
Electric	3,990,000,000 kw-hours	40,800,000,000
Nat. Gas	204,100,000 therms	20,410,000,000
		61,210,000,000

Source: MO'C Physics Applied, 1987

IMPACTS

Table C-24 estimates the direct energy use for electricity and natural gas at the proposed arena facility (Sink-Combs-Dethlefs, 1987). The estimates are based on the assumption that there would be seasonal use of an ice rink for hockey (which would add approximately 20 percent to the electricity use).

TABLE C-24
ESTIMATED ENERGY CONSUMPTION

FORM	YEARLY AMOUNT	TBtu/YEAR
Electricity	6,000,000 kw hour	61,400,000
Natural Gas	110,000 therms (9 mil. cu. ft)	11,000,000
Gasoline	227,000 gallons	32,700,000
		105,100,000

Source: MO'C Physics Applied, 1987

It should be noted that in deriving the gasoline estimates, it was assumed that there would be 155 events per year, with an average attendance of 11,300 persons, an average vehicle capacity of three persons and and average trip length of seven miles with an average vehicle efficiency of 18 miles per gallon.

The estimates show that the proposed arena would use approximately 0.15 percent of the electricity currently consumed by the entire City of San Jose and approximately 0.05 percent of the natural gas. Nonetheless, existing facilities of the Pacific Gas and Electric Company would be adequate to meet the demand created by an arena facility (Laberton, 1987).

It is only possible to speculate about secondary effects which could affect the significance of the estimates presented above. For example, the existing residences and businesses would be displaced with the implementation of the proposed project; consumption by these users would not be eliminated. The transportation component of the existing energy use has not been estimated; existing traffic would also be displaced to other roadways. Organizations presenting events, service firms and vendors would also account for some secondary energy use not included above.

Conversely, the significance of the transportation component of the energy use estimate is questionable when it is considered that the proposed arena's patrons may go on some other outing for some other entertainment in the arena was not constructed--perhaps to a facility more remote from there residences than the proposed arena location.

The development of the proposed arena facility in an area which is already served by existing urban services would not have a significant impact on energy consumption.

MITIGATION MEASURES

The following are mitigation measures that are not included in the proposed project but could reasonably be expected to reduce the adverse energy consumption impacts identified in this analysis.

- Whereas such mitigating measures of environmental effects as noise walls, air pollution control devices and intersection improvements add cost to a development, energy conservation saves money. It may therefore be appropriate for the City of San Jose to require that energy-related cost differentials associated with design alternatives be estimated and presented in the course of architectural review of the proposed structure.

- For example, the use of glass has a potential impact on energy use, as well as on the visual and aural aesthetics and on the cost of construction. Glazing affects energy consumption through it effect on radiative heat loss and solar heat gain. Natural lighting diminishes the need for artificial illumination. **(Not Presently Included in the Project)**

- It has been previously stated that the hockey rink would add on the order of one million kilowatt-hours per year to electricity consumption. The associated electricity cost of $50,000 to $100,000 would represent $2.50 to $5.00 per year for each of the 20,000 seats. Deletion of the hockey rink would reduce the projected annual electricity use by as much as 20 percent. **(Not Presently Included in the Project)**

- For transportation impacts, the Santa Clara County Transportation Agency may provide special runs of buses and light rail vehicles to accommodate patrons at major events. **(Not Presently Included in the Project)**

O. HAZARDOUS MATERIALS

EXISTING SETTING

1. Land Use

The project site is situated in a rural area of the City of San Jose. Industrial activities in the project area consist solely of the Santa Clara County Transportation Bus Repair Facility.

2. Industrial Activity

Santa Clara County Transportation Bus Repair Facility

Encompassing the site of a former peach orchard, this maintenance facility is located near the southeasterly corner of the State Route 237/Zanker Road intersection. Coyote Creek flows along the easterly perimeter of the project site. Fallow agricultural fields surround the facility.

The fuel delivery system at the transportation maintenance facility consists of seven diesel tanks (two 30,000 gallon and five 12,000 gallon) and one unleaded gasoline tank (12,000 gallon) linked via two fuel delivery lines (Geonomics, Incorporated, 1985). Three additional underground storage tanks exist at the facility, independent of the fuel delivery system (one 8,000 gallon waste motor oil, one 2,000 gallon motor oil and one 550 gallon automatic transmission fluid tank (Day, 1987). Above-ground storage of hazardous material consists of a single 6,000 gallon propane tank and engine coolant, which is stored on-site in sealed 55 gallon containers. Paints and solvents used for painting operations are

stored in an above-ground, locked and isolated shelter. Approximately 25 out-of-service coaches are currently stored along the southerly boundary of the complex.

On June 12, 1984, monitoring wells detected a release of diesel fuel from the underground fuel delivery system at the maintenance facility. Contamination at this site resulted from corrosion of fuel lines, which have since been either repaired or replaced. Impermeability of the soil limited contamination from diesel fuel to back-fill regions of the underground storage tanks and line trenches. The fuel and utility line trenches in the immediate area of the storage tanks and pump islands are currently saturated with diesel fuel. The exact distribution of diesel fuel in the trenches and back-fill is presently unknown (Geonomics, 1985).

All storage tanks have been certified as leak-free under the criteria established by the National Fire Prevention Association-- Code 329 (Geonomics, Incorporated, 1985).

The potential for ground water contamination at this facility has been attributed solely to the fuel delivery system. Ground contamination resulting from leakage of the above-ground storage tanks is not expected. Due to the volatile nature of fluids used for painting operations, the potential for groundwater contamination arising from these materials is nonsignificant.

A potential for ground contamination may exist due to the leakage of engine oil and deposition of asbestos from brake systems associated with the out-of-service coaches at the facilities. Soil stains are widespread along the southerly boundary of this facility.

POTENTIALLY SIGNIFICANT IMPACTS

1. <u>On-Site Hazards</u>

Public Exposure

Project construction would likely increase the level of acute exposure from existing hazards at the nearby Santa Clara County Transportation Repair Facility. Public access within the project site is currently limited to 340 full-time employees. Public occupancy would be short-term, typically less than four-hours. Non-public occupants such as administrative, maintenance, sanitation and security personnel would probably be on-site approximately 40 hours per week.

The proposed project would not reduce the chronic exposure level from existing hazards. First, the number of employees currently at the site would not be affected by the proposed arena. Also, no relocation of residential housing would result from the implementation of this project.

Hazardous Materials

The proposed arena is not expected to expose occupants to new sources of hazardous material. Rather, project construction would reduce the activity of existing potential generators, handlers and users of hazardous material. Cleanup would be required prior to development. The proposed project would not have a significant impact from hazardous materials.

Utility Lines

The proposed project would require relocating an extensive underground network of Pacific Gas and Electric (PG&E) natural gas and electrical transmission lines. Relocating the lines would require extensive excavation within the project site, and subsequent re-installation on nearby land. PG&E recently submitted an economic feasibility study to the City of San Jose with regard to the measures required to relocate existing utility lines. The relocation of utility lines would not result in a significant impact.

Fire Hazards

A large audience in attendance at the proposed arena would increase the potential fire hazards due to the increased arena activity, increased energy requirements and a potential for human error among the patrons. Handling and storage of flammable material at the proposed arena would be limited to maintenance activities. Proper and safe handling measures could reduce the potential impact to a less than significant level.

Emergencies and Evacuation

An Emergency Contingency Plan proposed as part of the project would outline emergency procedures, including arena evacuation, police and fire response and medical care facilities. The proposed project would have a less than significant impact from on-site hazardous materials.

3. Off-Site Hazards

Airborne Releases

No petroleum refineries or chemical producers exist within 2.0 miles of the project site which could present an immediate hazard on arena patrons through accidental release of hazardous pollutants. Exposure to hazardous materials could result from accidents involving heavy trucks transporting volatile hazardous materials along local roadways or due to the proposed arena's proximity to the San Jose/Santa Clara Water Pollution Control Plant (refer to PART FOUR SECTION I., Q. CHLORINE RISK ASSESSMENT, of this report).

Utility Lines

In the event of an earthquake, off-site gas mains may pose a fire hazard to project occupants (Pacific Gas and Electric Company, 1987).

Transportation Hazards

The absence of accident rate data for the roadways providing access to the project site prevents a quantifiable analysis of the potential for traffic accidents involving hazardous materials. However, the 1986 State-wide accident rate average for injury and fatality-related accidents was 0.52 per million vehicle miles (MVM). The 1986 average for all automobile accidents (i.e., property damage, injury and fatality) was 1.03 per MVM, State-wide (Environmental Science Associates, 1986).

No Southern Pacific Railroad facilities are located within 0.5 miles of the project site. However, the loading and unloading of chlorine gas does occur at the San Jose/Santa Clara Water Pollution Control Plant (located approximately 1.5 miles northwest of the project site). Refer to Section Q, Chlorine Risk Assessment, of this document for further discussion.

Hydrology

The influence of diesel fuel ground contamination from the Santa Clara County Transportation Repair Facility is unknown. The Santa Clara Valley Water District monitors the area for well contamination, sub-surface flow direction and water table level.

4. Conclusion - Level of Impact

Although there exists the potential for off-site hazards to impact the site, the continued safeguards and engineering provided for these hazards would reduce this impact to a less than significant level.

MITIGATION MEASURES

The following are mitigation measures proposed to be included in the project and other measures that are not included but could reasonably be expected to reduce the adverse hazardous materials impacts identified in this analysis.

- Site assessment would be necessary prior to project construction for a comprehensive evaluation of ground contamination. Prior to 1980, regulatory agencies lacked information regarding handling, transportation and storage of hazardous materials. As a result, site assessment would require sampling at several potential sources of ground contamination within each site. **(Included in Project)**

- A site-specific plan for clean-up activities would be required for evaluation of public exposure to hazardous materials during excavation, handling, transportation and disposal activities. **(Included in Project)**

- A closure plan would be required for determining the final disposition of the project site. **(Included in Project)**

- Any site-specific clean-up of contamination would be to the satisfaction of the Department of Health Services and the Regional Water Quality Control Board. **(Included in Project)**

P. URBAN ECONOMICS

EXISTING SETTING

This analysis considers the potential secondary economic growth (i.e.,, restaurants, cocktail lounges and other commercial businesses which might serve the proposed arena facility and its patrons) which could result from the implementation and construction of the proposed arena facility.

1. Expected Market Area

According to an economic evaluation of the proposed arena facility prepared for the City of San Jose by Economic Research Associates (ERA) in February, 1987, the expected market area for the project site includes southern San Mateo County on the peninsula, the cities of Fremont and Newark in southern Alameda County and the counties of Santa Clara and Santa Cruz. Two other arena facilities in the San Francisco Bay Area currently competing with the proposed San Jose Arena (and particularly defining the market area) are the Oakland/Alameda County Coliseum (located in Oakland, California) and the Cow Palace, located up the peninsula in Daly City.

2. Site Characteristics

The project site is approximately three-quarters of a mile west of Interstate 880 (the Nimitz Freeway) and two and one-half miles west of the Milpitas Town Center Shopping Center. The project site is surrounded by vacant land, light industrial and office developments. The majority of commercial uses includes motels, hotels, restaurants, shops and bars which might be patronized by arena attendees are located to the east of the project site in the City of Milpitas. A "Holiday Inn" has recently been constructed at the southwest corner of the Interstate 880/State Route 237 interchange.

POTENTIALLY SIGNIFICANT IMPACTS

The San Jose Metropolitan Area is primarily oriented to automobile transportation rather than other modes of transit. The use of nearby parking lots, garages and on-site parking is planned for in recognition of this. The arena operator and show promoters will want enough parking in order to accommodate patrons, and the City of San Jose is likely to require on-site parking to minimize impacts to surrounding properties.

1. Typical Attendance Patterns

Although the project site allows for less on-site parking due to the nearby garages and light rail system, the physical area of the surface lots will still be substantial. Because the arena facility is planned as an indoor facility, many events are expected to occur during the evening hours. Particularly during the winter months, patrons will arrive and leave the arena area after nightfall. The typical expected attendance pattern is for patrons to drive to the site, park as close to the arena facility as possible, and return to the car and drive home without other trips or activities. This is especially true for nighttime events where patrons must cross a large, exposed parking lot or walk through a commercial area which tends to be largely deserted at night. The lack of other on-going activities raises safety concerns, and people will tend to limit their travel to known routes.

For daytime events, it is worth mentioning that California sports fans have a time-honored tradition of "tailgating" or parking lot parties. Arriving at the facility early and picnicking before game time has many advantages: patrons may avoid the stress of pre-game traffic, choose a parking space close to the arena or stadium and, to a certain extent, be exposed to the crowd excitement without being crushed by it.

It is also noted that the performance or game is the event of choice and the focal point of the patron's trip. It is usually most convenient (and for many, less

expensive) to satisfy the need for a light meal or drink from concession stands at the arena. It is an increasing trend for promoters to provide concessions. Families with small children may also prefer this option, as it avoids the logistical problems and possible time delays associated with eating in restaurants. Parents will also worry about being separated from their children in crowds. This possibility is reduced somewhat by limiting travel plans.

For many persons, attending a live event is enhanced by the presence of a crowd, but most people will want the crowd to be mannered and orderly. There remains a certain level of unease due to unpredictable circumstances. For these reasons, families and other persons attending an event together will tend to follow a fairly strict pattern of going from their car into the arena, and then leaving straight for their car and heading home at the end of the event.

2. <u>Impact of Other Arena Facilities</u>

In considering whether the proposed arena facility will act as a local stimulus to commercial development or increased patronage at local hotels, restaurants and bars, three potential groups of patrons can be identified. They are:

- Arena event patrons;
- Players or performers participating in arena events; and,
- Persons returning to the arena area due to their exposure to interesting stores or shops while traveling to or from the arena.

In estimating the impact of the arena as a catalyst for new commercial development in the vicinity of the project site, neighborhoods surrounding the Oakland/Alameda County Coliseum and the Cow Palace were examined. Additionally, the Economic Research Associates report (February, 1987), which provides extensive information regarding the impact of other similar sports arenas in the western United States, was reviewed. Overall, it is felt that the presence of the proposed arena will not have a significant effect on surrounding land uses by generating demand for new commercial businesses such as restaurants, bars or shops.

Arena Players and Performers

One of the most major financial impacts of the arenas studied by ERA was the increase in business for local hotels and motels due to the out-of-town sports players and performers appearing at the arena. It has been projected that the proposed San Jose arena facility could generate a lodging demand of 14,000 room-nights annually. Assuming an average room rate of $60.00 per night creates a total revenue of $840,000. The City of San Jose currently collects a room tax of eight percent. This is equivalent to $67,200 in additional revenues on an annual basis once the proposed arena operation is stabilized (Economic Research Associates, 1987).

Arena Patrons

As noted above, the attendance of patrons to sporting and entertainment events at an arena such as that proposed in San Jose tends to be of an intermittent nature, and not constant or large enough to support new businesses. Additionally, the attendance patterns and methods of transportation further discourage this.

The Oakland/Alameda County Coliseum has been in operation since 1966, and it has an estimated 200 event days annually. It is located with convenient access to a Bay Area Rapid Transit (BART) station and Interstate 880 (the Nimitz Freeway). It has been observed that while events occurring at the Coliseum do create an increment of business for restaurants, bars and hotels in the Hegenberger Road area, the major stimulus for commercial development has been the growth of Oakland International Airport (Mills-Carneghi-Bautovich, 1987).

The Cow Palace in Daly City was established in the mid 1930's, and has an estimated 145 annual event days. No significant commercial development exists in the surrounding neighborhood, which is primarily industrial to the south and residential in the other areas. One new fast-food restaurant was observed in a field survey. The case of the Cow Palace is a better test of the catalyzing force, or stimulus, of the arena patrons' presence in the area. There are no overlapping influences here, such as the Oakland International Airport, which affects the Coliseum location.

The ERA report notes that interviews with persons knowledgeable of the experience in Dallas, Indianapolis, Houston and Seattle concluded that patrons of the arenas in these cities contributed only a nominal portion of the demand which would be necessary to support commercial businesses. While sales of existing businesses might increase slightly, the effect of the arena patrons has not been significant enough to spur additional development (Economic Research Associates, 1987).

Persons Returning to the Arena Area

A final source of economic stimulation to area businesses could be persons who become interested in the downtown due to their trip to the arena. The evidence from other cities regarding this potential is somewhat conflicting. As it is currently situated, patrons leaving the project site and heading east through the City of Milpitas would be exposed to commercial development, but this would not necessarily benefit the City of San Jose.

2. Identity

A less-tangible effect of locating the proposed arena facility close by the downtown area is the benefit of identity. It is generally agreed that patrons attending arena events from outside San Jose or Santa Clara County may for the first time refresh and revise otherwise limited impressions of the area. A significant amount of new development has occurred in the downtown area and major improvements are also expected to be completed by the end of the decade. For many people, attending the arena may be their first opportunity to become familiar with a new freeway route, the light rail system and the view the downtown's expanding skyline. It is possible that this familiarity may generate additional shopping trips or visits to the downtown, outside of attending sports or entertainment events.

Another significant factor possibly influencing economic growth and increased revenue for bars and restaurants near the proposed arena facility is whether or not San Jose becomes host to an NBA team. The presence of a home team can create a strong identity and civic pride, and also increase popularity at establishments where players, who become local celebrities in their own right,

may gather. A successful year can put an area or town "on the map". This may be a temporary phenomenon for sports fans from outside the area, but is likely to inspire long-lasting loyalty on a more local basis.

3. Conclusion - Level of Impact

It is concluded that the construction and operation of the proposed San Jose arena facility will have a nonsignificant impact on existing commercial businesses. Furthermore, it is unlikely that the demand generated by the event patrons, visiting teams or performers will be sufficient to cause additional development. These conclusions are supported by market research and the review of other Bay Area arenas, as well as observations regarding attendance patterns for most sporting and entertainment events.

MITIGATION MEASURES

No significant impacts would result from the proposed project and threfore no mitigations are proposed.

Q. CHLORINE ASSESSMENT

EXISTING SETTING

The proposed arena site is located on the southeast corner of State Route 237 and Zanker Road, approximately one mile southeast of the San Jose/Santa Clara Water Pollution Control Plant (WPCP) chlorination facilities and liquid chlorine rail tank car berthing area.

The WPCP is located at the southern tip of San Francisco Bay, easterly of Alviso, approximately six miles northwest of the central business district of San Jose and about five miles north of downtown Santa Clara. The area in the vicinity of the plant is near sea level and is characterized by flat lands and marshes and contains salt evaporation ponds. The treatment plant complex is constructed on approximately 150 acres of land, bordered by Los Esteros Road and Zanker Road.

The plant property includes approximately 1,600 acres of additional lands currently dedicated for specific uses, including 780 acres for buffer land and approximately 825 acres for solids handling and storage. Of this buffer land area, approximately 285 acres is reserved for future plant expansion. Buffer land is used for flood control, wetlands and agriculture. Additionally, approximately 285 acres has been reserved for permanent buffer land. This land is located southerly of the treatment plant complex along State Route 237.

1. Existing Chlorine Facilities and Operating Practices

General

The treatment plant facilities are designed to accommodate an average dry-weather wastewater flow of 167 million gallons per day (mgd) and a peak wet-weather flow of 271 mgd. Presently, the average dry weather flow is 120 mgd (Gonzales, 1987). Only nominal increases in flow of approximately 1-mgd per year are forecasted by the plant staff (Pounders, 1987).

Chlorine usage in the treatment processes averages 24,000 pounds (12 tons) per day. Total chlorination facilities capacity is 160,000 pounds per day.
The plant chlorination facilities and rail tank car berthing areas are approximately 100 yards south of Los Esteros Road, approximately one-mile northwesterly of the proposed arena site.

Liquid chlorine has been effectively used since the wastewater treatment plant was first constructed in 1956. Until 1971, chlorine was delivered in one-ton containers. Since 1971, chlorine has been received only in railroad tank cars directly from the producer. The existing facilities are well designed, operated and maintained. Training programs are ongoing and continually updated. In addition to excellent safety awareness by management and staff, a safety evacuation plan has been implemented (Pounders, 1987).

Railroad Spur Track

The City of San Jose owns a 1.6 mile industrial railroad spur on City-owned property. The spur extends from the Southern Pacific Railroad main line in Alviso to the plant. The spur track terminates in three parallel ladder tracks, providing two berths for the unloading of chlorine cars and one berth for the unloading of sulfur dioxide. The spur crosses two public roadways at-grade, crosses under one high voltage transmission line and crosses over several unnamed sloughs. More than one-mile of its length is situated on low swampland adjacent to the Bay, virtually all of which is at sea level. Automatic signal guards were installed at the railroad crossings in 1983.

Railroad spur improvements were constructed in 1985 by the City of San Jose. The project included regrading, leveling and regauging of the entire length of the 8,500 foot spur track and included placement of new ballast materials, raising of the switch yard at the main line and replacement of damaged ties. This work was accomplished in compliance with the requirements of the Southern Pacific Transportation Company and the Public Utilities Commission.

Rail Car Berthing Area

The rail line spur enters the plant buffer zone on the southerly edge of Los Esteros Road at a locked gate. The rail line enters the improved plant site through an opening in the perimeter fence in which an electric-operated gate has been installed for secure and controlled access to the railroad car berthing area.

The railroad car berthing area, inside the plant site perimeter, is additionally fenced. Outside of the berthing perimeter fence, there are two unlocked switches serving the three unloading berths. One elevated tower is provided, with two drawbridges, for access to the valve domes of two chlorine cars.

At the time of inspection, there were three 90 ton cars of chlorine and two cars of sulfur dioxide at the site. All of the chlorine railcars were equipped with shelf couplers as required. Armored head shields were not evident (present DOT regulations do not require head shields on chlorine rail tank cars). Commodity placards were evident on both ends and both sides of the chlorine railcars as required by Federal regulations.

All railcars are inspected by the WPCP operating staff a minimum of two times: once when received and again before being connected for immediate or later use.

On several occasions prior to 1979, the manufacturer had been contacted regarding faulty valves. In accordance with the plant operating procedures, faulty railroad cars are not connected to the chlorine feeding system (Niver, 1987).

Other Facilities

The existing chlorination building also contains an electrical room where switchgear, motor control centers and alarm panels are located. Leak detection is provided by a central alarm unit. The control unit serves up to seven remote chlorine detection points located at the rail sidings, chlorine rooms and adjacent areas. Additionally, there are wind socks at several locations of the plant site to aid in determining the upwind and lateral direction for employees to travel in the event of a leak report.

2. Safety Evacuation Program

In late 1984, a coordinated emergency action and response plan involving plant staff, local police and fire departments was implemented. Plant personnel were designated whose responsibility it was to summon the services of the police and fire departments (and other agencies, when appropriate) by directly contacting County communications. Representatives of the fire department have toured the plant and are familiar with the chlorine handling facilities, procedures and emergency response programs (Niver, 1987).

3. Accidental Emissions

According to plant staff, no significant accidental chlorine releases have been experienced over the past eight years. Prior to this period, various types of leaks were reported to have accidentally occurred at this facility. No serious threats to public health associated with these incidents, in the vicinity of the plant, were observed or reported.

POTENTIALLY SIGNIFICANT IMPACTS

Chlorine gas is primarily a respiratory irritant. Large amounts of chlorine will cause irritation and inflammation of the mucous membranes of the eyes and respiratory tract. The odor of chlorine gas can be readily detected by the normal person at concentrations above three parts per million (by volume). At higher concentrations, chlorine can result in throat irritation, coughing and sneezing. Chlorine gas can cause discomfort and temporary or permanent damage to the respiratory system. An overdose of chlorine gas can cause death (Kennedy/Jenks/Chilton, 1987).

1. Plausible Accidents Considered

Potential accidents considered for this analysis were limited to activities at the WPCP and the City-owned railroad spur, and did not consider over-the-road accidents not under the direct control of the City of San Jose.

As described earlier in this section, the WPCP has implemented a number of preventative measures that mitigate (and minimize the possibility) against the occurrence of the catastrophic type accident involving railcar derailment and

puncture, damage of system elements due to fire, etc. Accordingly, consideration of plausible accidents can therefore be restricted to chlorine leaks do to faulty system piping valves and equipment or to operator error.

Germane to conditions at the WPCP, and pertinent to other considerations addressed in this analysis, one possible severe accident that could occur is a gas emission resulting from the unchecked liquid flow through a one-inch line connected to a rail tank car. This scenario assumes that the following events occur simultaneously:

- The liquid chlorine pipeline suffers a guillotine break failure;
- The excess flow-check valve in the tank car does not function;
- The liquid chlorine angle valve in the tank car cannot be closed; and,
- The tank car is full (90 tons) of liquid chlorine).

For normal purposes, this type of accident can be controlled with only a small amount of liquid chlorine released and the probability of all the above occurrences happening simultaneously is remote. Moreover, records indicate that this type of accident has never occurred at a wastewater treatment facility in the United States (Kennedy/Jenks/Chilton, 1987).

Therefore, with existing engineering and safety procedures provided at the WPCP, the potential for a significant impact from accidents could be considered to be less than significant.

2. Estimated Effects from a Chlorine Release

An atmospheric model can be used to estimate the effects of a hypothetical vapor emission from incidents such as that described above. This section discusses the dispersion model, pertinent meteorological considerations and the results of the chlorine vapor dispersion analysis relevant to the threat to public health at the proposed arena facility.

Meteorology

The meteorology of the San Jose area is typical of coastal areas of Central California, with generally mild temperatures and sharply delineated wet and dry seasons.

Winds in the project area prevail from the north and northwesterly directions. Strong south winds along the Santa Clara Valley frequently occur on summer afternoons, with velocities reach ten to 20 miles per hour (mph). The prevailing wind direction, as recorded at Moffett Field, is from the north. Winds from the north occur approximately 27 percent of the time, with an average wind speed of 7.6 mph. Winds from the northwest occur approximately 13 percent of the time, with an average velocity of 6.3 mph.

Meteorological data from the San Jose International Airport, located approximately seven mile south of the WPCP and the project site, indicate prevailing winds from the northwesterly direction. At the San Jose International Airport, a calm occurs approximately 17 percent of the time. The meteorological conditions at the WPCP and the project site would most likely range between the conditions experienced at Moffett Air Field and the San jose International Airport. It should be noted that during rain storms, winds are from the south with velocities ranging upwards to 30 mph.

In the San Jose area (as in the San Francisco Bay Area in general), there is a tendency for the occurrence of atmospheric temperature inversions. Inversion studies conducted in San Jose over a four year period showed surface-based inversions due to night-time radiative processes occurring at a high frequency during the early morning hours in the winter and at a low frequency in the summer. In contrast, afternoon inversions occurred most frequently in the summer, and least frequently during the transition months of April and November. During the two year period from September, 1971 to October, 1973, approximately 485 morning and 360 afternoon observations were made for inversion conditions. These records showed that 98-percent of the morning observations and 80 percent of the afternoon observations detected inversion conditions.

Estimated Dispersion of a Hypothetical Emission

For the credible accident previously described, the data indicate that rather high concentrations of chlorine could reach the proposed arena location under certain circumstances. Under adverse conditions, a chlorine release resulting from a major spill could threaten the health of the public at the proposed project site.

For evaluating potential adverse health impacts resulting from a chlorine release, the 35 parts per million (ppm) is usually selected for modeling because, at this concentration, chlorine is dangerous, and respiratory protection would be needed for persons working for an extended period of time. At concentrations under 35 ppm, it is generally accepted that most persons, under direction of clear authority, would be capable of orderly evacuation in a cross-wind direction to a comparitively safe location with minimal assistance. While the odor would be strong and persons would experience throat irritation and coughing, no treatment would be necessary of exposure were short, and no permanent injuries to persons would be expected. Mortality would be expected to be virtually zero for exposures to concentrations less than 35 ppm, unless the exposure time was extremely long or the victim had other health complications. Noticeable health impacts including throat irritation or coughing would be encountered under adverse conditions for a release of less than 2,500 pounds per hour.

Under average conditions, a larger leak of the magnitude greatly exceeding the "worst case accident" or "maximum credible release" would be required before dangerous exposure levels exceeding 20 to 30 ppm are reached at the proposed project site. For the "worst case" accident considered for this analysis, under average meteorological conditions, the dispersion model analysis indicates that chlorine concentrations exceeding 20 ppm would not occur at the project site.

Factors which tend to make these analyses conservative (actual concentrations lower than predicted) include wind variability and chlorine dispersion. The general effect of a meandering wind would be to aid in chlorine dispersion. The analysis assumes no reaction or deposition of chlorine molecules on the ground surface. In reality, chlorine would tend to deposit onto surfaces with which it comes in contact, slightly reducing the concentration downwind. Another factor of conservatism would be associated with rain. During a rainstorm, "scrubbing" of the atmosphere would occur to reduce the chlorine concentration along the plume.

Factors which tend to make the analysis optimistic include the occurrence of inversions. An inversion, especially a surface-based inversion, would inhibit

vertical dispersion and tend to result in higher actual chlorine concentrations downwind compared to predicted concentrations.

3. Chlorine Transportation Hazards

Although the risk of occurrence is very small, the greatest potential for casualties is associated with the transport of chlorine from the producer to the user. This occurs as a result of the greater potential for tank car accidents that could cause rupture (rather than a leaking valve or pipe) that is associated with railroad transportation accidents. Such a rupture could result in an almost immediate release of about 20 percent (18 tons) of the tank car's contents into the atmosphere. Such events have occurred in this country, and have resulted in injury and death of people.

An earlier study (Simmons, 1974) concluded that a major accident involving the rupture of a railroad tank car of liquid chlorine is likely to occur in the United States once in ten years. It is estimated that about 4.24 million tons of liquid chlorine were shipped by rail in 1979. The WPCP uses approximately 4,400 tons per year, or 0.1 percent of the total shipped by rail. Under these assumptions, it can be calculated that a major accident involving a tank car at or destined for the WPCP might occur once in about 10,000 years (ten years + 0.001). While this is a somewhat speculative calculation, it does indicate that the risk of a major transportation accident is extremely remote.

Unfortunately, the safety of chlorine transport in not under the direct control of the WPCP. Significant improvements in the design of chlorine tank cars are currently being instituted, including tank car head shields to prevent puncture of the tank ends during a derailment, and the requirement for coupling restrainers to reduce the risk of the cars uncoupling.

The safe handling of chlorine and therefore the potential for accidents would not be within the development of the proposed arena facility. However, because of the control procedures and engineering safeguards provided at the WPCP site, this impact is seen to be less than significant.

MITIGATION MEASURES

The following are mitigation measures proposed to be included in the proposed project and others that are not included but cold reasonably be expected to reduce the adverse chlorine impacts identified in this analysis.

1. Source Control at the WPCP

Schedule for the transport of the liquid chlorine railroad tank car on the City-owned spur, and railroad tank car connects and disconnects at the berthing area could be managed to avoid, when possible, periods when no events are scheduled at the proposed arena. Moreover, railcar delivery and connects/disconnects could be performed during the early morning hours when the wind is normally out of the south. **(Not Presently Included in Project)**

2. Source Control Facility Modifications at the WPCP

- A railroad car berthing area containment structure could be constructed to control emissions of chlorine gas from a tank car. This facility could be equipped with caustic scrubbers to react with chlorine vapors. The feasibility of implementation of this structure has been analyzed earlier for the City of San Jose (Ruth and Going, 1981). **(Not Presently Included in Project)**

- An earthen berm could be constructed in the existing landscaped area between the berthing area and Los Esteros Road to limit exposure of berthed cars to the public. This berm would serve to conceal the berthing area from direct line-of-sight exposure from Los Esteros Road. Potential damage of the rail cars from projectiles fired by vandals or other could be mitigated. **(Not Presently Included in Project)**

- Chlorine system facility modifications could be provided to improve safety, to enhance emergency operations and to improve overall system integrity to protect against sudden ruptures or breakdowns. **(Not Presently Included in Project)**

3. Control at the Proposed Arena Site

- Early warning systems could be incorporated in the arena design to initiate timely evacuation of the proposed arena complex in response to an alert from the WPCP. This alert could be signaled to the complex by telemetry. Also, the alert warning could be transmitted to local fire, police and medical services to facilitate quick and effective evacuation efforts. **(Included in Project)**

- Scheduling of events could be limited to times of day and periods of the year when climatic conditions are most conducive to atmospheric dispersion. For example, wind speeds are normally the highest in the afternoon during the summer. By scheduling events for this period, the potential adverse impacts at the arena from a possible chlorine spill at the WPCP could be minimized. **(Included in Project)**

4. Facility Design Considerations at the Proposed Arena

- Arena exits and parking facility flow patterns and exits should be designed to expedite possible evacuation. Building exits should be provided on the south side of the buildings. **(Included in Project)**

- Utility control systems could provide for the shutdown of HVAC equipment in response to a chlorine spill incident at the WPCP. Shutdown controls could be automatically initiated by telemetered signals originating from the WPCP. Alternatively, the shutdown control could be manually operated by the arena utility personnel. Moreover, air intake ventilation openings should be on the southerly side of the proposed buildings and could be fitted with automatic self-closing louvers such as smoke dampers. **(Included in Project)**

- Topographic features could be incorporated in the arena site layout to aid in atmospheric dispersion. Features could include construction of

earthen berms to induce dispersion, either on the arena site or northerly of the arena complex on buffer land presently owned by the City of San Jose. **(Not Presently Included in Project)**

- Facility elements could include clearly signed and labeled evacuation routes and procedures to be followed in the event of a chlorine spill emergency. Vehicular routing to and from the arena should be signed; special lanes should be established for emergency use by authorized personnel and vehicles only. To aid in medical evacuation, a heliport could be constructed in the arena grounds. **(Included in Project)**

SECTION II

ALTERNATIVES TO THE PROPOSED PROJECT

As stated in Section 15126 (d) of the California Environmental Quality Act, it is the responsibility of the Environmental Impact Report to describe a range of reasonable alternatives to the proposed project or to the location of the project, which could feasibly attain the basic objectives of the proposed project. Additionally, the environmental document should evaluate the comparative merits of the alternatives. Four alternatives to the proposed project were examined and ompared to the proposed project in order to compare relative impacts. These alternatives included:

- The "No Project" Alternative;
- Alternative locations for the proposed Arena Facility;
- A reduced seating capacity (14,000 seats) for the proposed project site; and
- An alternative that would impede the project objective but eliminate or reduce significant environmental effets.

The following is an evaluation of the likely environmental effects associated with each of the proposed alternatives.

A. NO PROJECT ALTERNATIVE

The no project alternatives assumes that the proposed San Jose Arena Facility would not be built on the project site and that the existing land uses would remain in their current state. The project site would retain its present appearance and character pending future development proposals. Implementation of this alternative would postpone the environmental impacts associated with the proposed arena facility as previously discussed in this document.

The no project alternative is the environmentally preferable alternative since it would avoid the adverse impacts of the project. The adverse impact of the project that would be avoided include the following:

- Generation of traffic that results in significant traffic conjestion at some locations during some arena events.
- Air pollution emissions contributing to the cumulative air quality impacts
- Loss of intermitent wetland habitat

Adverse effects associated with the implementation of the no project alternative would include the following:

- The economic and cultural benefits associated with the operation of an arena facility would not be realized by the City of San Jose.

B. ALTERNATIVE LOCATION FOR THE PROPOSED PROJECT

The alternative of another location assumes that the proposed San Jose Arena Facility project would be developed as proposed. However, another location within the the City of San Jose would be considered for its development.

In addition to the Arena Site C, this environmental document assessed the impacts associated with the development of an arena facility at two other locations, both in the central of San Jose. The first of these locations is (Site A) on the northerly side of Santa Clara Street between the Southern Pacific railroad tracks and the Guadalupe River/Los Gatos Creek. The second alternative location (Site B) is on the northerly side of New West Julian Street adjacent to the westerly side of State Route 87 Freeway. The Guadalupe River traverses the westerly sector of Site B. Impacts associated with both of these alternative porject locations include: 1) Neighborhood Impacts, 2) Traffic Circulation, 3) Air Quality Impacts, 4) Potential Noise Impacts, 5) Potential Archaeological Impacts, 6) Historical Impacts, and 7) Dislocation of Business Impacts. In addition to these impacts , development of the arena facility at Site B would result in impacts to the riparian habitat fo Guadalupe River where bridges are widened or constructed. There are also constraints to Site B on the westerly side of Guadalupe River from the planned drainage and flood control improvements.

The traffic circulation impacts associated with Site B would be slightly less than with Site A since three less intersection would be impacted. There would be more businesses dis location impacts on Site A than on Site B. Other impacts would be generally similar on both Site A and Site B including neighborhood impact, air quality impacts, potential noise impacts, and historic and archaeological impacts.

The impacts of developing an arena facility at Site C have been described in PART FOUR of this Environmental Impact Report. These impacts ar significantly less than the impacts that would result from developing an arena facility at either alternatives Site A or Site B. For this reason development of the arena facility on Site C is identified as the "environmentally perferred alternative" as required by the California Environmental Quality Act. Impacts could be further reduced by developing a smaller capacity arena, approximaterly 14,000 seats on Site C.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

C. REDUCED CAPACITY ALTERNATIVE

The reduced capacity alternative considers the development of an arena facility with a maximum attendance level of 14,000 persons. This capacity would represent a 20 percent reduction in attendance than analyzed for the 17,500 person attendance level and a 30 percent reduction in attendance for the 20,000 person attendance level. Beneficial effects associated with this reduced capacity alternative would be most noticeable from a traffic and circulation viewpoint. With the reduced capacity alternative, traffic impacts and air quality impacts would reflect a 20 to 30 percent improvement over the proposed project, depending on the attendance level. The impacts to intermitten wetland could also be avoided by a reduced size arena since it would require less parking and the wetland could be avoided.

The smaller capacity arena would not achieve the goals of the proposed arena facility.

D. ALTERNATIVE THAT SUBSTANTIALLY IMPEDES THE PROJECT OBJECTIVES BUT ELIMINATES OR REDUCES SIGNIFICANT ENVIRONMENTAL EFFECTS

Implementation of the Rincon de los Esteros Redevelopment Plan is expected to eliminate or reduce some of the identified impacts to an nonsignificant level. This Redevelopment Plan designates public/quasi-public uses on the site but these uses would not be expected to be as intensive of uses as the proposed arena facility. The alternative uses of the site that would have the least environmental effects and would still conform to the San Jose General Plan Designation (and the Rincon de los Esteros Redevelopment Plan) of public/quasi-public use would be a very low intensity public/quasi-public use. The overall objective of the Rincon de los Esteros Redevelopment Plan is to implement the City of San Jose General Plan and policies of the City in the development of the area. The objectives of the actions proposed by the Rincon de los Esteros Redevelopment Plan include (Redevelopment Agency of the City of San Jose, 1987):

- Strengthen and expand the community's tax base through an effective program for economic development and improved employment opportunities;
- Provide for the installation of capital improvements (public and private) necessary to support such a program;
- Remove structurally substandard buildings, eliminate blighting influences, remove impediments to land development and achieve changes in land uses; and,
- Encourage the development of labor-intensive industries for the purpose of providing expanded employment opportunities.

The development of an intense public/quasi-public use on this site (other than an arena facility) could still create unacceptable traffic conditions. As a result, the traffic improvements proposed for State Route 237 would still need to be constructed. Additionally, some of the other impacts identified in this environmental document would need to be addressed should another development proposal be considered for the project site.

SECTION III

SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

Implementation of the proposed project would potentially result in three significant unavoidable impacts. These impacts are listed below along with the section of this Environmental Impact Report where they are described.

1. Traffic Circulation Impacts - PART FOUR, SECTION I., B. TRAFFIC CIRCULATION

2. Air Quality Impacts - PART FOUR, SECTION I., E. CLIMATE AND AIR QUALITY

3. Archaeological Impacts - PART FOUR, SECTIOIN I., L. ARCHAEOLOGICAL RESOURCES

All of the other impacts can be mitigated to a nonsignificant level or are not significant impacts. The potential archaeological impacts may not occur since subsurface testing revealed no indications archaeological resources. However, past experience in the general area of Site C has revealed that archaeological resources can be encountered even after tests yielded no indication of their presence therefore this impacts has been listed in this section of the EIR.

SECTION IV

GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

A project is generally considered to be growth-inducing if it can foster economic or population growth, or the construction of additional housing (either directly or indirectly) in the surrounding environment. Included in this are projects which would remove obstacles to population growth. Growth is often induced through one or more of the following actions: 1) extending urban services into a previously unserved area; 2) extending a major roadway into a previously unserved area; or 3) establishing major new employment opportunities.

1. <u>Urban Services</u>

   The proposed arena facility project does not extend urban services (i.e., new water and/or sanitary sewer lines) to a new area. Existing service lines will be improved and upgraded, as necessary.

2. <u>Roadways</u>

   The proposed project does not include the construction of any new roadways. However, Riverfront Road, which will replace the existing Montgomery and Autumn Streets, will be constructed adjacent to the project site as part of the Guadalupe River Park Master Plan. The proposed project does involve the upgrading of existing intersections (i.e., acquisition of right-of-way, restriping of lanes). These improvements will be implemented to improve the circulation in the project area.

3. <u>Employment</u>

   Implementation of the proposed project would incrementally increase the employment opportunities in the project area. However, the project would not generate enough jobs to be considered growth-inducing.

4. <u>Housing</u>

   The proposed project will not generate any new housing opportunities.

SECTION V

CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

As stated in Section 15355 (b) of the California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report is required to describe the cumulative impacts from the proposed project. Cumulative impacts are the combined impacts of a proposed project added together with other closely related past present and reasonably foreseeable future projects. Future projects are projects that have been proposed and filed with the City of San Jose prior to the circulation of this Environmental Impact Report or development that is anticipated by Year-2000 in San Jose's General Plan. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This Environmental Impact Report addresses cumulative impacts from two perspectives. The first perspective is for Year-1991 when the proposed arena facility would become operational. In Year-1991 perspective, all existing and proposed development are considered in the background conditions and then the project impacts are added to these background conditions. The second perspective is for Year-2000, which is the horizon year of the San Jose General Plan. In Year-2000 perspective, all of the existing and planned development in the City's General Plan is considered with the background conditions and the arena facility project impacts are added to these background conditions.

The proposed 20,000 seat arena, together with other development that is existing or planned, could potentially result in significant impacts to traffic circulation, parking, air quality, noise, and urban services. Each of these potential cumulative impacts have been analyzed within their respective sections on this Environmental Impact Report and the cunclusions are summarized below.

A. TRAFFIC CIRCULATION

Cumulative traffic circulation impacts are presented in PART FOUR, SECTION I., B. TRAFFIC CIRCULATION. This traffic analysis evaluated the traffic circulation impacts in Year-1991, taking into account traffic from exisitng development, approved but not constructed and occupied development and proposed development. Traffic from these developments was increased by adding an annual background growth factor to account for overall increases in traffic from development outside of the general project area but within the greater San Jose area. The project traffic was then added to derive cumulative traffic. The results of the cumulative traffic analysis showed that there would be significant cumulative traffic impacts at 4 intersections during the PM peak hour when 20,000 patrons attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would also be significant cumulative impacts at 4 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would not have significant cumulative impacts.

The traffic analysis also evaluated the traffic circulation impacts in Year-2000, taking into account all of the development that is planned for in San Jose General Plan Horizon 2000 and other anticipated development in Santa Clara, Milpitas, and other cities in Santa Clara County. Year-2000 traffic is projected using the City of San Jose's traffic model, TRANPLAN, which includes all of the roadway improvements, transportation conditions that are planned for in Year-2000. Traffic from the arena facility was then added to this projected Year-2000 traffic. Traffic that would have been generated by other uses of the site was eliminated from the analysis. The results of the cumulative traffic analysis for Year-2000 showed that there would be significant

cumulative traffic impacts at two intersections during the PM peak hour when either 20,000 or 17,500 patron attended an event with a 6:00 pm starting time. Under these same conditions, expect with 17,500 patrons, there would significant cumulative impacts at 11 intersections. Events starting later in the evening (between 7:00 PM and 8:00 PM) would impact only six intersections.

Even with the mitigation measures included in the project, the proposed 20,000 seat arena would result in significant cumulative traffic circulation impacts under some circumstances when taken together with traffic from other existing and planned development.

B. AIR QUALITY

Cumulative air quality impacts are presented in PART FOUR, SECTION I., E. CLIMATE AND AIR QUALITY. This air quality analysis was based upon the cumulative traffic analysis for Year-1991 and Year-2000, which takes into account the air pollution emissions from arena generated traffic as well as traffic from existing and planned development. The air quality analysis shows that there would be significant cumulative air quality impacts under worst case stagnate air conditions. These significant cumulative air quality impacts result from the total emissions including regional background air pollution cencentrations added to air pollution emissions generated by arena traffic and emissions from traffic associated with existing and proposed development.

C. VEGETATION AND WILDLIFE HABITAT

The proposed arena would eliminate a small area of intermittent wetland. This loss of wetland habitat, together with the disturbance and reduction of wetland and riparian habitat along the Coyote Creek from the proposed flood control improvements would result in a significant cumulative adverse impact to the wetland habitat.

F. URBAN SERVICES

The proposed arena facility would result in increased demand for urban services beyond that which is presently required from the present use on the site since it is largely vacant. As described in PART FOUR, SECTION II., J. URBAN SERVICES, the project would require increased services for: fire protection, police protection, water supply, sanitary sewers, wastewater treatment capacity, natural gas, electricity, telephones and solid waste. Providing adequate fire protection service in the vicinity of the proposed arena facility (on Site C) would require construction of a new fire station in the area. A new fire station is proposed prior to 1990. With the fire new fire station, all of these services could be provided to the arena. There would be a cumulative impact upon these urban services from the arena together with all other existing and planned development. These cumulative demands upon urban services are collectively substantial but would not constitute a significant impact since they are planned for by the utility suppliers and the City of San Jose. Impacts to City services including police protection, fire protection, sanitary sewers and wastewater treatment, are mitigated by Level of Service requirements established by San Jose's General Plan as program mitigation measures. These Level of Service requirements are implemented by only approving development that does not exceed the level of service. Since new development approvals are required to meet the program mitigation and Level of Service requirements, and since adequate levels of service are currently being provided and can serve the project, there would will not be significant cumulative impacts to urban services.

SECTION VI

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENACNE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between the local short-term uses of man's environment and the maintenance and enhancement of long-term productivity is often one of trade-offs or a balancing of social, economic and environmental impacts over time. In some cases, a relatively short-term benefit may have adverse cumulative effects. The opposite situation in which long-term benefits occur at the expense of short-term impacts is also possible. Decisions that influence the balancing of such impacts for this project are the responsibility of the City of San Jose as part of its policy and decision-making function.

The cumulative impacts of the proposed arena facility together with other existing and planned development would be: 1) Traffic Circulation; 2) Air Quality; 3) Vegetation and Wildlife Habitat Loss; and 4) Urban Services. Only two of these cumulative impacts are significant these are traffic circulation and air quality. The cumulative impacts have been previously described in PART FOUR, SECTION V.

There would be four significant unavoidable impacts resulting from implementation of the proposed arena facility. The six unavoidable impacts are: 1 Traffic Circulation Impacts; 2) Air Quality Impacts; 3) Vegetation and Wildlife Habitat Loss; and 4) Archaeological Impacts.

In addition to the above cumulative impacts and significant unavoidable impacts, there would be short-term construction impacts that include construction traffic, localized construction vehicle and equipment noise, increased rates of air pollutant emissions on-site, and increased energy consumption. Also, there would be temporary visual impacts during construction, consumption of construction materials and increased construction employment.

Not withstanding these impacts, the arena facility is being proposed at this time because of the economic, cultural and community benefits that would be derived from it.

PART FIVE

SAN JOSE ARENA FACILITY EIR

REFERENCES AND COMMUNITY INPUT

AUGUST 1987

PART FIVE

REFERENCES AND COMMUNITY INPUT

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SECTION III

COMMUNITY INPUT

On April 28, 1987, at 7:00 p.m., the City of San Jose conducted a public scoping meeting to provide early consultation on the preparation of the EIR of the three arena sites. The purpose of this meeting was so that the City of San Jose, acting as the lead agency on the EIR and project could receive public testimony regarding input into the development of the EIR. The scoping meeting was attended by approximately 60-70 persons, of which 20 provided public testimony. A transcript of the public testimony is provided in this section. Also, all written comments presented at the meeting is included. The Shasta/Hanchett Park Neighborhood Association also presented a copy of the San Jose Sports Arena Traffic and Parking Impact Study (February, 1987) with comments in the margin. Because of the length of this document, it is not provided here. A copy of it is located in the files of the City of San Jose Planning Department Files.

Public Testimony

Daniel Cochran: Thank you. My name is Dan Cochran. I live at 1195 Martin Avenue in San Jose. Probably here a number of issues relating to the environmental impact tonight, and I'm just going to briefly touch on one. A project like an arena will hopefully not only attract a patronage, but will probably also attract a number of businesses that will also want to leverage off the existence of that arena. A good example is - I don't know how many people have ever been to an Oakland "A's" game at the Collisium, but Henry Hoffbrau right next door. One of my concerns is what mitigations will be placed on zoning restrictions for businesses located adjacent to or close to neighborhoods around the arena that may not currently be serving food, beverages, or catering to a late crowd, but that may be buying property now in an effort to speculate on the possibility of this arena locating it in a downtown neighborhood. This would specifically affect Site A and probably Site B. The businesses on The Alameda as they run up towards Martin Avenue and Hanchett and as they go down there. There are many neighborhoods very adjacent to that. I'd hate to see those businesses bought, speculated on, and granted business licenses to conduct activities that would cater to late night arena crowds. Thank you.

Bill Thomas: Thank you very much, Mr. Cochran. Is there anyone else wishing to speak at this time? If you're wishing to speak on the item, I would suggest, to save time, if you could probably move up and be seated over in this area. We certainly want to hear from all of you and that would probably take less time if you're seated in this area if you'd like to talk. Thank you very much.

Yolanda Reynolds: Yolanda Reynolds and I live at 1650 Shasta Avenue, and I'm Pre... also President of the Shasta/Hanchett Park Neighborhood Association and there are several other people from the association who also wish to speak. But I'd like to bring out some points in that I think have not been addressed and other communications that we have had to the Redevelopment Agency. On March 10th there was a Multi-modal Station Study meeting and it was pointed out that forty-five million dollars that they had expected for the improvement of that station was going to be diverted by the governor to other projects and part of that forty-five million was to be allocated for the garage that was mentioned as providing part of the parking for the arena patrons in the evening which would I think would would be a serious impact to the consideration of placing the arena at the downtown site. If that money is not going to be there there's going to be even less parking available. And that, as you know, is a real concern to the neighborhood.

The other thing is that in the South Bay Corridor Study, which has to do with the extension of the BART to downtown San Jose, it indicates that the Cahill Station will be an end-of-the-line site in San Jose. And, what sort of impact and what significance will the combined arena and end-of-the-line, station have on traffic, parking, noise, construction? I think that's something that has to be addressed, in the short run and the long run, as well. There, there are, other things that I think that that would be considered, and I've mentioned that would be the level of service. The City has certain policies and that is what impact it'll have on the level of service policy that the City has.

The other policies that are in General Plan which are preservation of neighborhoods, as well as preservation of historic districts and we consider our neighborhood, The Garden Alameda, the Shasta Gardens, the Hanchett Park and Hester Park, the area around the St Leo's Church, to all the older parts of the town that actually have great historical significance to the City. And , as you know, commute and through-traffic on our residential streets has been a major major concern of this neighborhood. And, the City has a policy that residential neighborhood collector streets can be protected from through commuter traffic with barriers like those that were constructed in Naglee Park. And I've seen some in Campbell Avenue. I don't know exactly whether that lies in the City or not. But, we wish to have, the same kind of consideration that was extended in those communities and we would like to have the major collectors that are through residential areas that they, that will be impacted by the arena to be considered for review eh so that they could be made into neighborhood collectors so that they could also be provided with barriers to commutes and through-traffic. And I'm looking at the General Plan map, The major collectors that I could identify were of course Shasta and Hanchett. It appears that Park is perhaps a major collector; its a two lane major collector. It appears that Julian between the Stockton and The Alameda is a major collector and it appears that Stockton is. It's hard to tell by the coloration, gradation, exactly what is, but those are some of the streets that - I think there might be others that I think Traffic Operations could identify - that would indeed be impacted and could, in fact be, be named, neighborhood collectors so that they could as well be protected from through-traffic.

Finally, we are also concerned that those environmental issues that have been raised in the other redevelopment plans as was noticed much of the redevelopment area and especially site selected for the arena, both Site A and B, lie along the Guadalupe River and the Los Gatos Creek. And and in those hearings, much in our community has been very enthusiastic and happy about the prospect of the integrity of those creeks and that river being maintained, and we understand there has been a lot of work and a lot of concern raised by groups and individuals concerned about the flora and the fauna along those areas. We would hope that the arena the environmental review would incorporate those hearings into this review as well. And I understand the very extensive including folks from the Audubon Society and Friends of the Creek and so on. And I would like would request that that would be included. And another concerns been raised by some of the folks in the neighborhood is that again if you look at the map, the both of the downtown sites, but particularly Site A, which lies at the confluence of the Los Gatos Creek and the Guadalupe River, are probably ancient food gathering and dwelling site for the Ohlone Indians and I would suspect that there are many artifacts as well as

burial sites there and I think on behalf of the tremendous influence that those people had in the early day before it was California that that is part of the history and that should there should be some consideration and protection of those artifacts. And there's several other things that I would like to introduce, is I have very lengthy, this Barton Aschman Study and we have dog-eared every page and there are many comments and rather than go through it p, item by item, I'd like to submit this as part of the testimony and I would like it back, it's very precious to us; many people have devoted much time to it so that each one of the issues in here could be addressed. I have a copy of the letter with regard to this the Ohlone site and and there's some other documentation here; I think Lisa Gibson will be going over this, and and it will be submitted along; she'll be talking about that.

And finally, I have one concern and that is I understood that this document was supposed to have been published in the paper to announce to people about the scoping. I want to ask those of you who saw this in the paper, would you please raise your hands. It was two individuals. I don't know where it appeared. I read the paper page by page. I did not see it. (Cough) Excuse me. I think that, with such limited coverage you can see there's quite a number of people, had this received the kind of coverage, this place would be filled. Thank you. I can not talk any longer.

<u>Bill Thomas</u>: Yes the next speaker, please. Please approach the lectern.

<u>Pete Smiderle</u>: My name is Pete Smiderle. I live at 1305 Hanchett in the Rose Garden area and the reason that I wanted to take the time to come here tonight is to talk about the neighborhoods really and the potential impact of this activity on the neighborhoods. I've lived in the general area of the Rose Garden for about ten years now. And slowly its been coming back to what it should be, in fact its been coming back more rapidly in the last few years as some people have been able to come into the area and spend the money and the time to restore the houses in the neighborhood into the into the area that it was, I think, probably when it was first created. And one of the things that I'd like to have considered by the environment impact study is the fact that all great cities have a great neighborhood. If you've ever been to St. Louis or Philadelphia or Atlanta or San Francisco or areas like that, you know that they all have a great neighborhood that's been taken cared of, nurtured, and protected, and right now it appears that San Jose's chance to have a great, grand old neighborhood is is being threatened by the potential placement in Site A and Site B. I'm really not prepared to talk on whether or not San Jose should have an arena. I have opinions on that but I, I personally don't think it's something that the City needs. One

of the things I do think the City needs is a great neighborhood. And the traffic and the businesses and the type of activity that I think would be brought about by this type of an arena, this type of activity would not help that neighborhood. So that's really pretty much all I have to say.

Bill Thomas: Thank you, Mr. Smiderle.

(Clapping)

John Horbotzy: My name John Horbotzy. I live at 630 South 14th Street, San Jose, and I am president of the Campus Community Association which is southeast of the downtown area. CCA has not taken a position either in term of support or in opposition to the arena. However, the the board and the steering committee have very serious concerns that the issues do get addressed most of which have already been addressed tonight. Of particular interest to the CCA is the impact of the arena, not just on the Campus Community Association neighborhood, but all of the residential neighborhoods in the downtown because it's our feeling that if one neighborhood is impacted, they're all impacted and while we may not see the impact as directly, we'll certainly feel it over the long term.

Our second concern has to do with just the fiscal impact and it has to do with level of services diversion of funds use of funds that might go into into ongoing City projects as opposed to strictly the arena. In terms of, as I mentiond in terms of our overall position, we do not have one either in support or not and when the EIR comes out, we will surely have some comments. In terms of representing Campus Community Association, that concludes my remarks, but personally I would also like to make some remarks and that I think should also be addressed. Specifically is the diversion of the 20% low modern income housing funds. Again in terms of making this arena possible, I'm very familiar with the housing program. I'm familiar with State law and I think that that should be addressed in the fiscal impacts portion of the EIR.

Matt Paolercio: My name is Matt Paolercio. I live at 971 Schiele Avenue and that's located on the fringes of the Rose Garden area between The Alameda and Stockton and the short, I want to just make a short point and that is the historic importance of the neighborhood has already been touched on, but I would just like special concern for older neighborhoods because they are more fragile than neighborhoods that are being built today. You know Victorians aren't being built out of stone and granite anymore. And, one thing that I'm really surprised that about that hasn't really been mentioned is that we are experiencing now a traffic problem in our area and, it doesn't that doesn't seem to be discussed at all. I mean, so far, I haven't heard any any real concern as far as, you know, as where we're going as far as what we're gonna to do

with the the traffic, the excess traffic that's gonna hit our streets, in the light of what we have right now to deal with. But again, I would just like to see the historic value of our neighborhood looked at sincerely and seriously because it's a very unique area and though I, I think the arena is a wonderful idea, we really ought to weigh the consequences of affects - the traffic it would encourage in our area, the drive-through traffic and what affects it would have in our neighborhood. That's all.

Bill Thomas: Thank you. Next speaker please.

Jeanne Cavanagh: Yes. My name is Jeanne Cavanagh and I live at 1550 Calaveras and that's a short street that runs between Park Avenue and Dana. And what I'd like to quote from Margaret Niren that lives at 1176 Martin requests that I bring this letter. And she has a very good point in "We request that we have long-term and permanent protection for our historical residential area regardless of changes and membership on the City Council and changes of City Officers in the future." And also on my own, I would like the City Council isn't here but some of the people, since I sell real estate to take you on a tour of some of the houses for sale. You could see what a really wonderful neighborhood we have, and that certainly we're protecting and caring for. Thank you.

Bill Thomas: Thank you very much. Yes. Could we have a copy of that letter please, or could you give us the letter and we'll make a copy and give it back to you? Thank you very much.

Jack T. Mommsen: My name is Jack Mommsen. I live at 92 Atlas Avenue and I'd just like to extend a point that Yolanda Reynolds made about blockading the streets to keep the traffic down. If you take a look at this map right up here you can see all the streets, all the small streets with older homes that exist around these sites and you can't just walk off Hanchett and Shasta and Martin, because people just go up the street to Fremont and turn down. So, what you wind up doing is blockading every single street if you want to take that approach. And if you look at all the small streets and older homes on this map I think you'll agree that that's a losing battle. Furthermore, I'd like, I'd hope that the environmental report addresses not only the options, rather the available roads and highways and trains that people can take to these events, but also what people really do. In other words, I'm sure there'll be bus service, possibly train service, some day BART service. There's gonna be a new freeway running by there, but when ten thousand cars are backed up on the on-ramp to the freeway, the freeway maybe able to carry

them but I think you'll agree that after 45 minutes, people are gonna turn down Atlas Avenue. And as you start, again as you start blockading off these other exits, they just go somewhere else so I, I just don't see that a residential area with this many avenues makes any real sense at all. Thank you.

Bill Thomas: Thank you very much. Next please.

Lisa Gibson: Lisa Gibson. I live on 871 Schiele Avenue and most of my concerns have already been raised except, people are going to cruise around our neighborhoods and we're concerned about that and like the gentleman said, you can block off residential streets without giving us problems. Parking is totally inadequate. We, I'm addressing myself only to the Sites A and B. And, we're concerned about the PG&E facilities being on the Stockton Avenue, which is already giving us a lot of, traffic. 680 is giving up a lot of traffic down Schiele Avenue. It's really an eh side street of Taylor Avenue and if neighborhoods are fragile, this is definitely a point to be made. We have a lot of other concerns but I'm hoping that the EIR will address them. Thank you.

Bill Thomas: Thank you very much. Yes.

Question from the audience inaudible with no microphone.

Bill Thomas: A and B, I'm sure. (Inaudible comment from audience) Okay, thank you very much, for the record, A and B. Thank you.

Catherine Delaney: I'm Catherine Delaney. I live at 1150 Hanchett. I'm concerned because right now Hanchett, as a lot of us know, is, a race track, a favorite cruising place on week-ends. During commuter hour it's very busy, and I wonder what kinds, what's going to happen when we have people going to the sports arena, drinking and cruising our neighborhood streets, especially Hanchett. I wonder if it's going to be the kind of situation that we've heard about exists in Santa Clara right now around Mervyn's that the City of Santa Clara's is trying to deal with and I would hate to see the City of San Jose repeat the same, repeat the same kind of mistake. It seems that we should be able to profit from other's mistakes and not repeat them ourselves. So I'm officially voicing my opposition to Sites A and B.

Bill Thomas: Thank you very much. Let me make one statement at this time, if I may. The, as John Lusardi pointed out, we're having Barton and Aschman do an extensive traffic study for the arena sites , the three

sites. We have the City Council, the Planning Commission, and the Planning Department have all supported, in the last few years, a historic district for a portion of The Alameda. We've also had several PD Zonings on The Alameda to establish the historical character and to maintain the historical character of that area. The Environmental Impact Report that we prepared will certainly look at those issues and certainly see the relevance of those issues to the proposed sites. We are looking and we will look at the entire picture. One of the reasons why we're here tonight with the scoping meeting, we're trying to get a feel for the community's concerns so we can address as many of those issues as possible in the preparation of the EIR. I don't mean to cut off conversation, so if anyone else wants to speak, come on up. Come up to the microphone, please.

Wanda Buch: Wanda Buch, 1245 Magnolia Avenue. Included in the traffic, does that include the exhaust fumes as well or just a count on numbers.

Bill Thomas: I will have, Bob Hanken or John Lusardi constest that please.

John Lusardi: John Lusardi. Planning Department. Yes, air quality will be analyzed within the Environmental Impact Report and that will also include traffic air quality.

Wanda Bush: Okay, I don't know if I'm being redundant and I feel maybe a lot of people aren't speaking because we're concerned about that. However, there's a residential quality to a neighborhood, you know, aside from cars going at sort of, enjoyment of living that if you're on the road to San Jose through our neighborhood that will be lost and I'm very very concerned about it.

Bill Thomas: Thank you. Thank you very much. Not only will they consider the exhaust from vehicles, we'll also consider the noise relating to the travel of the major streets throughout the City of San Jose and the effects that will have with the addition of any new projects within the area. Yes, Ma'am.

Margaret Marumoto: Good evening. My name is Margaret Marumoto and I live at 1026 Bird Avenue. I am speaking in opposition to the placement of an arena at Site A or B. I live at the bend in the road on Bird Avenue.

Bird Avenue cannot sustain anymore traffic and it certainly cannot sustain the traffic of cruisers or people who are intoxicated. Thank you.

Bill Thomas: Thank you very much.

Christine Miller: My name is Christine Miller, I live on 295 Sequoia, in San Jose and I'm very close on the corner there to Hanchett which sustains quite a lot of traffic. My speaking tonight is on the aesthetic angle of having the arena on sites A or B, not because traffic isn't my priority, but because that's been addressed. No one has spoken to the fact that we are so fortunate in the City of San Jose to have a lovely river meandering through our downtown and I don't think the arena will bring us any aesthetic beauty, I think there could be other uses for that site, either one of those can be. Thank you.

Roger Bryan: My name is Roger Bryan, I live at 1518 Shasta. I've three concerns one of them I guess has been partially addressed that concern over air pollution. It's primarily the my concern really is, is the effect of having would it be 10,000 cars possibly all sitting in one place idling their engines for long enough to get into parking areas, the effect of that concentration and also if these cars could back up the neighborhood streets, the effect down the overhanging trees, those trees are suffering quite a bit as it is, and if we have start running buses through there ripping the trees up, cars parked or idling their engines trying to get to the arena, that these might have a very bad effect on the vegetation the trees along these streets. Another concern that I sort of noticed here, my son's a pilot so I happen to notice here and was reminded the Reid Hillview incidence of landing on May Company or potentially or whatever the shopping center is there, Eastridge, that these are on a direct line of the approach of the airport. Both sites A and B, especially B, and what considerations has been given to possible accidents with the concentration of some I guess it's 19,000 people or whatever the would be populating the arena. And, the last concern that I have also has to do with the airport, no one really needs an alarm clock with that airport there, about ten minutes to seven or thereabouts, everyone starts taking off and the noise problem is great. I guess I wonder, I don't know what the noise level comparison between 19,000 screaming sport's fans or whatever is gonna go on in the arena at 11:30 at night, what that's gonna do I have no idea what the noise levels are, but I can guess it probably would duplicate that of the airport so that now we get it at both ends of the day, awakened in the morning by the airport and the I get to sleep at night by the roaring fans in the arena at those two sites, A and B, I think those are my concerns. Thanks.

Bill Thomas: Mr. Lusardi.

John Lusardi: Ladies and gentlemen, that is a valid concern that is raised and perhaps has not been explained fully. The only projects that we are considering are all three sites at this time is an enclosed arena only, it's not an open arena.

Darlene A. Bic: My name is Darlene Bic and I'm at 1458 Shasta Avenue, and I have three concerns I'd like to address tonight. The first is at site A, where Phase 1 calls for about eleven hundred parking spaces and Phase 2 calls for adding 900 parking spaces and in order to I guess my concern is that with Phase 1 there's the Guadalupe River Park will will not be there and my concern is that will we really add those 900 spaces at the expense of the park? I can't see that we'd put in 900 spaces just to build the park for people,and I think it's very important that we have a park downtown. The second issue that I'd like to raise is pedestrian traffic. The two downtown sites call for sharing parking garages that are already downtown under a ten minute walk away from the arena sites, and I hate to think 40,000 people leaving the arena and walking down Santa Clara Avenue on 6 or 8 foot sidewalk. I I fear they are going to spill into the street and being more problem with the traffic. The third issue I'd like to address is crime. It's well known that a good place to break into a car and steal a stereo is in the parking lot of an arena while people are inside because they know they've got a couple of hours to work and I think that an arena at these two sites are or at the third Zanker site will bring more crime to our City.

Steven Valdes: My name is Steve Valdes, I live at 1137 Shasta Avenue. I think the traffic in in fact our neighborhood problems have been covered I'd like to request that the Environmental Impact Report also covers sewage and waste treatment from this proposed 19,000 person facility, issues of safety with crowd control on the issue of crime just mentioned, I think it is, in fact, well known that crowds of this size draw opportunistic crimes such as car theft, burglary, quite possibly robbery, strong arm robbery. I think that drainage runoff needs to be assessed, if they are going to be paving such a large area, I think the impact of that on the creeks and river beds and on the storm drainage system should be considered. The structural safety of the structure proposed needs to be analyzed in the conjunction with the effect of an earthquake, if we have a major earthquake with 19,000 people in one spot, the effect on the police services and other emergency services needs to be analyzed. I think on that same line, the fire and police protection for this larger gathering and the strain on the local police and fire departments needs to be taken into consideration. And as to my personal opinion on the sites, I would like to voice my opposition on sites A & B.

Bill Thomas: Thank you. Anyone else wish to speak? At this time, I would like to identify two people in the audience, who took the time to come tonight and listen to this presentation and hear your concerns. One of them is Councilwoman Nancy Ianni is here tonight in the back row (applause), and another person I'd like to recognize is Carol Beddoe who is a representative of Susan Hammer's office (applause); and David Pandori, excuse me, David Pandori is here also, and of the Mayor's Office and glad to have all those people on board tonight, not only with us but with you to hear your testimony.

Again, I would like to thank all of you tonight for the orderly way you made your points, relating to the scoping meeting to the EIR on the arena. Again, I would encourage all of you who would have written material that you like to submit but do not have it available tonight to make it available to us as soon as possible in the Planning Department. At this time or in the future, feel free to call upon us in the Planning Department in relating to the Environmntal Impact Report or to the Draft Environmental Impact Report and any questions you may have when the hearings may be coming up for the environmental impact report. We cannot give you those dates at this time, because we are just entering into the scoping meeting. We did plan to have this information available probably within a month or two to give you a good handle on when the hearings and the dates will be. There will be a 45 day review of the Draft EIR, once it is prepared and distributed, so at that time, we encourage you to contact our office, to go to the Main Library, downtown, or the libraries in your area, will have copies of the document for you, and you can look at them at those locations, review them, and please give us your comments on those documents. We certainly want to hear from all of you. Again, I'd like to tell you that there's two people here tonight that have made brief presentations, one of them was Jeannie Armstrong of the Redevelopment Agency, if you have any questions relating to the project itself, and or of the Redevelopment Agency, please contact Jeannie Armstrong, her phone number is 277-5823, and on environmental issues, feel free to call John Lusardi, he's a Senior Planner in the Department of City Planning, and he can be reached at 277-4576.

At this time, I'll conclude this hearing, we have maps on the back wall, the participants here tonight will be around for a little longer to answer any of your questions, and to help you to, hopefully, understand what we're doing and so you can be of a better service to your community as you have been tonight and in the future. Again, thank you all very much for attending the meeting.

/lrs/jv

ARENA/[1-6]

4-28-87

ARENA PROJECT
EIR SCOPING
City COUNCIL CHAMBERS Meeting 8pm 4-28-87

ATTENTION: THE CONSULTANT CONDUCTING THE
EIR ABOVE

WE ARE MOST CONCERNED ABOUT THE NEGATIVE IMPACT OF LOCATING THE ARENA AT EITHER OF THE DOWNTOWN SITES- (TRAFFIC, PARKING, NOISE)

WE REQUEST THAT WE HAVE LONG-TERM AND PERMANENT PROTECTION FOR OUR HISTORICAL RESIDENTIAL AREA, REGARDLESS OF CHANGES IN MEMBERSHIP ON THE CITY COUNCIL AND CHANGES OF CITY OFFICERS IN THE FUTURE-

SINCERELY,

Margaret A. Nyren - 10-YEAR RESIDENT

MARGARET A. NYREN
(MRS. ROBERT J. NYREN)
1176 MARTIN AVENUE
SAN JOSE, CA 95126

cc. FILE

Shasta/Hanchett Park Neighborhood Association

1650 Shasta Avenue
San Jose, CA 95128
(408) 286-6310

Yolanda Reynolds
President
Nancy Fowler
1st Vice President
Lisa Gibson
2nd Vice President
Jeanne Cavanagh
Secretary
Ron Ruiz
Treasurer

Directors
Darlene Bik
Christine Miller
Harold Moss
Margaret Nyren
Matt Paolercio
Rocky Rotondo

Basin Research Associates
Suite 110
31126 San Clemente Street
Hayward,Ca. 94544

Attn: Dr, James Boyd
Dr. Colin Busby

A concern has been expressed by some members of our Association regarding the possible destruction of more archeological artifacts in the San Jose area.

We are writing to you because it has come to our attention that your research has positioned your firm as dedicated champions of archeological preservation of Ohlone artifacts and historical sites.

The City of San Jose is planning the construction of an arena by the year 1991. Several sites have been identified as possible locations for the proposed arena. It is felt that two of the sites are ancient Ohlone Indian burial and food gathering sites. One location in particular would appear to be a very important Ohlone Indian food gathering and ancient home site because it lies at the confluence of the Los Gatos and Guadelupe Creeks.Another proposed location also lies along the banks of the Guadelupe Creek. This site is of perhaps less importance but could still contain many artifacts.(See attached)

It is our assumption that your previous research has been thorough and would include data on these areas. In order that knowledge of the extensive Ohlone influence on early day life in California not be lost;we are asking for your help in this matter.Your previous research would most likely include data on these areas. Do you have information that would address our concern that you could share with us? We are available for discussion on this matter if that is preferable.

Sincerely

Yolanda Reynolds

cc.
Tom McEnery,Mayor City of San Jose
Jeanne Armstrong,Arena Project Manager
John Lusardi,Department of City Planning

Response to the San Jose Sports Arena Traffic and Parking Impact Study for Alternative Sites.

Listed below are several concerns I have relative to the two downtown sites, A and B, covered in the study. I urge the council to demand a more accurate assessment of the environmental impact that will be caused by the increased traffic that would result from placing the arena at either of these sites.

Either site would allow only 1200 on-site parking spaces. This is sorely inadequate and would result in a great deal of "cruising" the neighborhoods to find on street parking before patrons would give up and park in expensive parking facilities.

We see no provisions for employee parking, truck and bus space for touring companies' lighting, scenery, performers, technicians, etc. Will this cut into the already inadequate 1200 spaces?

The traffic analysis assumes an average of three people per car. We feel this is unlikely for a downtown arena with inadequate public transit service. In any case, employees, performers, etc., are unlikely to arrive three to a car!

Using the average attendance of 17,500 may make some portions of the analysis seem more palatable, but there are going to be some capacity events (ideally several if the arena is to meet expenses). Where will these additional 1500 people park?

One suggestion is on-street parking in the neighborhoods. There are many problems with this idea. First, the study assumes 1000 "available" parking spaces in the neighborhood closest to site A. Our survey of residents indicates that they find no such availability. A close look at the study shows that this figure is based on one cursory check during a one hour period on one night. The assumption reached was that if a space was empty at 8:30 pm then it would not be used by residents at any time during the evening. This is unrealistic. At my house, we must park two cars at the curb during the night. Often neither car is there during the surveyed time, yet both cars usually are there by 10:00 pm. What of residents who wish to invite people to their homes on "event" nights?

Another aspect of neighborhood parking that I don't understand is the suggestion that there be permit parking for residents and that it be strongly enforced. How can you enforce permit parking if the proposal is to allow arena patrons to park on residential streets? Will a patron's car be towed away if a resident comes home at 9:30 pm and wants to park?

I think the council should be cautious about accepting figures relating to the Oakland Coliseum. Patrons there have transportation alternatives. It is common sense that it is cheaper for one or two people to go there by BART, but that if four people were to go it might be more economical to drive. We have no such alternatives. Trains and busses may be fine for getting to the arena, but very few lines run late enough to allow patrons to get home after an event. Perhaps charter busses could be used by some groups if someone did the organizing. But where would the charter busses park? In the neighborhoods?

We are very concerned about up to 18,000 walking from their parked cars to the arena and back through our quiet neighborhoods at night. The cutbacks in police protection we've heard about make me wonder about who will maintain order among these crowds who may be excited and aroused from an important game. Our sidewalks, particularly those on West Santa Clara Street are not designed for the safe movement of such large groups.

The study's assumption is that everyone will drive along the main arterials. There is no mention of the added traffic on our neighborhood side streets - streets that are already seeing increased traffic of speeding cars and heavy trucks bypassing the arterials.

Site B is very near PG&E's huge natural gas storage tank (site A is not much farther away). And since both sites and the gas storage tank are under the flight path of San Jose Airport, the possibilities of a catastrophic disaster are too horrible to consider. A heavily loaded jetliner landing on a packed arena or the gas tank could take <u>thousands of lives</u>. Although the response time of the three fire stations in the area is theoretically three minutes, does this take into account crowded traffic and/or pedestrian conditions? Are the fire stations capable of handling the potentially massive emergency? I understand that the water pressure in the area is inadequate.

And, of course, we are very concerned about the additional noise pollution that will result from the influx of up to 19,000 people and at least 5,000 cars to our neighborhoods, the air pollution that will be caused by the cars, the trash on streets and lawns that inevitably come with crowds, and the threats of vandalism, muggings, etc., that come when many strangers "invade" a settled residential area several times a month.

Lisa A. Gibson
871 Schiele Avenue
San Jose, CA 95126

SANTA CLARA VALLEY AUDUBON SOCIETY, Inc.
415 Cambridge Avenue, Suite 21
Palo Alto, CA 94306
(415) 329-1811

RECEIVED
MAY 1 1987
CITY OF SAN JOSE
PLANNING DEPARTMENT

April 29, 1987

John Lusardi
Dept. of City Planning
801 N. First Street
San Jose, CA 95110

Re: The Arena Project

Dear Mr. Lusardi,

The Santa Clara Valley Audubon Society would like to receive any information or reports circulated regarding the three alternative Arena Project sites. Please place the chapter, at the address above, on your mailing list to receive the Draft Environmental Impart Report, as well as any traffic or economic analyses.

We have several concerns that we would like addressed in the Draft EIR. Of primary concern is the overlap of this project's sites A and B with both the Corps of Engineers' Flood Control Project for Guadalupe River and the City of San Jose's plans for Guadalupe River Park. We are also concerned about the impacts site C would have on the Coyote Creek Flood Control Project.

Any additional direct or indirect stresses the Arena project would put on the natural resources of these two rivers should be identified. This includes describing the possible need for more or larger bridges crossing the rivers to carry additional traffic loads generated by the Arena, and resulting destruction of vegetation; detailing any intrusion into riparian corridors, ways to avoid that intrusion, possible permits needed, and mitigation for any planned losses; specifying any loss of previously planned open space areas either permanently or temporarily; stating how much of the flood plain near site C will be built upon, or otherwise impacted; identifying what direct and indirect stresses would be placed on adjacent habitat and resident or migratory wildlife (including the amount and impact of - increased human and feral animal contact with the riparian zones, garbage, and the pressure to build in remaining open spaces to provide public and private services related to the Arena

Seasonal and permanent wetlands exist along both sides of 237. An Arena project in that area would place greater pressure to make 237 a larger road and to build that road more quickly than presently planned. City and county plans both include protections for wetlands. How will the City contribute to the preservation of wetlands along the 237 corridor? If wetlands must be destroyed for the 237 widening, needed in part to handle Arena traffic, what mitigation will the City contribute as their share?

Sincerely,

Lynn Tennefoss

Lynn Tennefoss
Managing Director

cc Corps of Engineers
Dept. of Fish and Game
Harvey and Stanley Associates
Linda Eklund
Libby Lucas

Shasta/Hanchett Park Neighborhood Association
1650 Shasta Avenue
San Jose, CA 95128
(408) 286-6310

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CITY OF SAN JOSE
PLANNING DEPARTMENT

Yolanda Reynolds
President
Nancy Fowler
1st Vice President
Lisa Gibson
2nd Vice President
Jeanne Cavanagh
Secretary
Ron Ruiz
Treasurer

Directors
Darlene Bik
Christine Miller
Harold Moss
Margaret Nyren
Matt Paolercio
Rocky Rotondo

May 4,1987

Attn: Jeanne Armstrong,Arena Project Manager
John Lusardi,Department of City Planning

Re: Arena Public Scoping Meeting

Please include this communication with those submitted at the Arena EIR Scoping meeting held at City Hall on april 28,1987.

Cahill auto parking spaces are slated to provide Arena patron parking should the arena be located at the Downtown Datsun site. At the March 10 Multi Modal Station Study Meeting it was noted that $45 million expected from the State to renovate the Cahill station (which includes building the parking facility) has been diverted to another purpose by the Governor. In projecting available parking for the arena patrons has this new information been taken into consideration? How do you propose to make up for the additional loss of parking spaces?

The South Bay Corrider Study,which has to do with the extension of Bart to Downtown San Jose,indicates that the Cahill station will be considered as the "end of the line". What sort of impacts will the combined arena and the planned Bart extension have for traffic and parking on the adjoining neighborhoods. Also what noise ,dust,disruption and longer term impacts might be expected that will either enhance or further detract from the land use strategies of the Cities' General Plan?We are especially concerned about;

Compliance with the City's LOS policy,

Neighborhood preservation,

Preservation of historical areas.

By City policy,construction of through traffic barriers are allowable on residential and neighborhood collectors. Such a strategy was effectively used by the City of San Jose at Naglee Park. The Association requests that the major collectors such as Shasta Ave. between San Carlos and Hanchett Ave, between Park and the Alameda,Julian Street from Stockton to the Alameda,Park Ave. and any other 2 lane major collectors through our neighborhood or other neighborhoods that will be impacted by the arena (Bird Ave,?) be designated as "neighborhood collectors". Without neighborhood protection to through traffic any

other"protective measures" are meaningless and unacceptable. The Barton-Aschman traffic analysis indicates that almost 70% of the Arena traffic awill come from the South and West. That means that about 6,000 cars are expected to use the Guadelupe corrider to access the Arena. Also,in this same study it indicates that most patrons arrive 20 minutes prior to the scheduled event. In such a scenario, it is most unlikely that the arena patrons will follow the arena signs;as most of the patrons will be those same people who currently are using Shasta and Hanchett Bird and other surface streets to commute to their work.

Guadelupe River and Los Gatos Creek environmental testimony and concerns must be included in the Arena EIR. It is our understanding that the City has made certain commitments toward the restoration of the integrity of these to waterways. How will those commitments be met if the arena is placed at either of the two downtown sites? If Federal monies are to be used in the restoration of either of these two waterways,an arena at either of the two downtown sites should have to meet Federal Environmemtal Review Standards.The restoration of the River and Creek is not only important from and an environmental perspective but from an aesthetic one as well.

What measures will the City take to more effectively announce future meetings relative to the arena to the public,especialy those involving the EIR? As was noted at the April 28 meeting,of the many people that were there,only 3 persons were not notified by the Assoc.We strongly feel that many more individuals would have been there if they were aware of the effect that the arena will have upon their homes and,in some cases their businesses.

Sincerely,

Yolanda

Attached is copy of letter to Mayor McEnery from Assoc.

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San Jose, CA 95128
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April 3, 1987

Mayor Tom McEnery
801 North First Street
San Jose, California 95110

Re: Proposed San Jose Sports Arena

Dear Mayor McEnery,

On behalf of the Shasta/Hanchett Park Neighborhood Association, I would like to bring to your attention some of our concerns about the proposed San Jose Sports Arena. Specifically, I will be directing my comments to proposed Sites A and B (Santa Clara Street site and Julian Street site, respectively). After reviewing the report prepared by Barton-Aschman Associates, Inc., "San Jose Sports Arena Traffic and Parking Impact Study for Alternative Sites," we have concluded that the report is inadequate, is based in part on assumptions which are incorrect, and glosses over problems which may have a stong negative impact on the residential neighborhoods adjacent to Sites A and B.

Because of our concern over the impact of the proposed downtown Arena sites, we request not only that the Environmental Impact Report authorized by the Council at the November 16, 1986 Redevelopment Agency Board meeting, be in full compliance with the standards set forth in the California Environmental Quality Act, but that the Association be allowed to participate in the preparation of this report. Specifically, we request that we be permitted to review and comment upon progress reports made in preparation of the Draft E.I.R. *at the same time* that these reports are submitted to the Redevelopment Agency.

In addition to involvement in the E.I.R.process, we wish to point out to you the following objections to the Barton-Aschman report, and to traffic problems we foresee, and request that you address each of these:

1. A major assumption of the traffic and parking study is that all events will occur at 8:00pm, or later. There are, however, no assurances or guarantees that the Arena management will be restricted to these hours. If the arena should lose money, as is often the case with this type of facility, taxpayers may demand expanded use of the Arena. In the event the Arena will be used during normal working hours, Monday through Friday, what measures will be taken to alleviate the traffic and parking burdens?

2. The report purports to deal with the traffic and parking problems which may arise when the Arena is in use for a scheduled event. The report, however, does not address the traffic and parking problems which will be presented by service and employee use. The proposed Arena is a major facility and will require tremendous personnel support in order to run smoothly; this will be an additional burden, during normal working hours, to already overburdened thoroughfares. Furthermore, service vehicles will require access to the Arena during normal working hours in order to prepare for events scheduled after 8:00pm or on

weekends. What provisions will be made to diminish the impact of service and employee use on traffic and parking?

3. Another assumption of the report is that all major road way improvements will be completed at the time of the arena opening. If these improvements are not completed what what will be the effect on traffic and parking, and what steps will be taken to minimize these?

4. Because of the development of businesses and entertainment in the downtown area, parking will be at a premium and it is likely that Arena patrons will be competing with patrons of these other activities for relatively few parking spaces. The traffic report does not take this into consideration, but assumes that the majority of downtown parking facilities will be available to Arena patrons. What alternative arrangements will be made in light of this fact?

5. More and more businesses are permitting their employees to work on a "flex schedule" in order to relieve traffic congestion at peak commuter hours. As this practice becomes widely used, the net result will be that traffic remains heavy for several hours past the usual commute times. Again, the report does not take into consideration this fact; what measures will be adopted to deal with this?

6. The report does not address the effects of increased noise levels which Arena traffic will produce. The neighborhoods adjacent to Sites A and B are in close proximity to the airport and the noise levels there are exceedingly high as a result. The addition of the volume of traffic which the Arena will attract will cause those noise levels to exceed acceptable standards. What steps will be taken to ameliorate the effects of the resulting noise pollution?

7. The traffic report assumes that public transit and light rail systems will accommodate their schedules to coincide with Arena events, thus easing traffic and parking congestion. In the event that public transportation is unavailable (e.g., CalTrans will probably
discontinue its Peninsula train service) what adjustments will be made to cope with the increased traffic levels?

8. The traffic report concludes, at page 19, that the demand for on-street parking in the areas adjacent to Sites A and B is not very high, and that in order to prevent on-street parking by arena patrons in nearby neighborhoods, residential permit parking must be introduced. This suggestion, however, does not deal with the problem of increased traffic through the neighborhoods: What programs will the city implement to prevent this?

9. It is reasonable to anticipate that restaurants, bars, and other associated businesses may move into the area adjacent to the arena, but the traffic report does not deal with this possibility in assessing the impact of the arena on traffic and parking. What restrictions will be placed on these types of businesses and what measures will be used to minimize the effects on traffic and parking.

10. Charter buses will be used to transport groups to Arena events. This will add to traffic, noise, and smog levels. What restrictions will be placed on charter buses to prevent these environmental hazards?

11. The Shasta/Hanchett Park Neighborhood Association, in

cooperation with the City of San Jose Traffic Operations Staff conducted a traffic study. In their memorandum dated March 10, 1987 to the Redevelopment Board Agency, the staff indicated that any mitigation measures required for Arena sites A and B should be in accordance with the recommendations of that study. These preliminary measures include the following:

a. Downgrade Shasta Avenue between San Carlo and Park, and Hanchett Avenue between Park and The Alameda from that of a major collector to a neighborhood collector;

b. Narrow Tillman Avenue with construction of a planted median strip between Park Avenue and Shasta;

c. Construct barriers to prevent commute traffic with access through the neighborhoods at the following locations: Dana Avenue, Shasta and Hester along San Carlos, and Hanchett and Martin along The Alameda.

d. Restrict through truck traffic in all of the neighborhood streets;

e. To relieve excessive traffic congestion on San Carlos, Park Avenue and The Alameda, construct a freeway on and off ramp joining Highways 87 and 17;

f. Delete the proposed widening of the Julian Street underpass from the Julian/Stockton Redevelopment plan.

In addition to the above, the Association would like assurances that a follow-up report, similar to an Environmental Impact Report, will be prepared after the arena is completed and in operation, to assess the actual impact on the surrounding areas. Further, we request that the City commit itself now to alleviating all such detrimental effects on the surrounding neighborhoods.

The Shasta/Hanchett Park Neighborhood Association is gravely concerned about the adverse effects the location of a Sports Arena at either proposed Site A and Site B will have on the surrounding neighborhoods and requests that further study be undertaken and greater community involvement be solicited before a final site location is made. It is likely that additional issues regarding these proposed sites will be raised at the April 28, 1987 E.I.R. "Scoping" meeting and I trust you will give these your full attention as well. We appreciate your careful consideration of our concerns, and look forward to hearing from you on the above items in the near future.

Very truly yours,

Yolanda G. Reynolds/cc

Yolanda G. Reynolds
President

cc: Nancy Ianni, Councilwoman
Susan Hammer, Councilwoman
Jeanne Armstrong, Arena Project Manager
Planning Commissioners (7)
Frank Taylor, Redevelopment Agency
Gerald Newfarmer, City Manager

FILE NO. ER 87-8-26

The Director of the Planning Department of the City of San Jose hereby certifies that, to the best of his knowledge, the information contained in this Environmental Impact Report is complete as required by Subsections (a) through (g) of Section 21100, of Division 13 of the State of California Public Resources Code.

Date: August 21, 1987

Gary J. Schoennauer
Director of Planning

William A. Thomas
Deputy

JPL:ei
2710L

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